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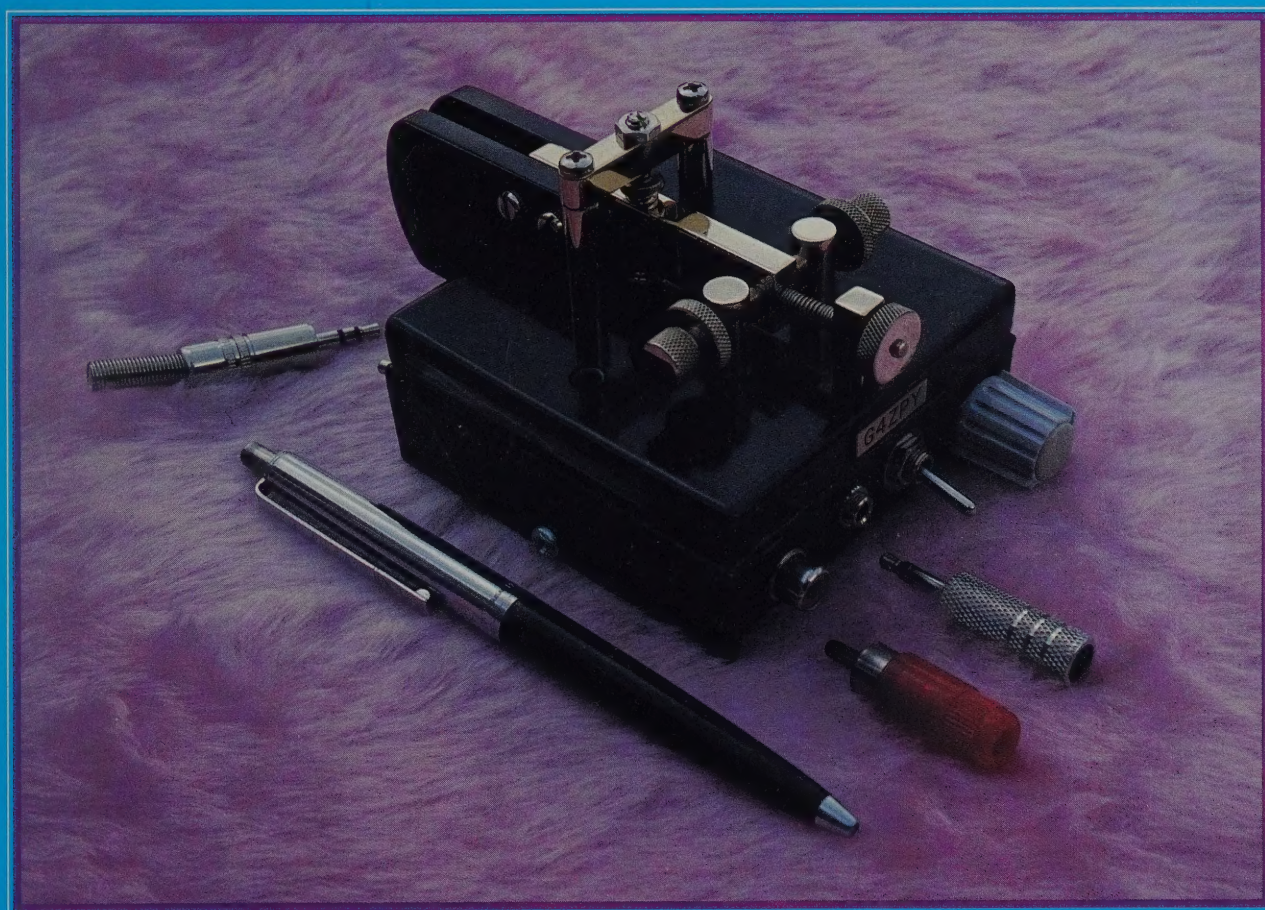
COMMUNICATOR

MARCH/APRIL 1994

FOR THE NOVICE AND TECHNICIAN AMATEUR

Volume 4 Number 2

- *How To Understand Digital Communications*
- *How To Make A Two-Meter Antenna For Under \$10*
- *NARA Responds To FCC Proposal*
- *Dan & Burke*
- *Fox Hunting*



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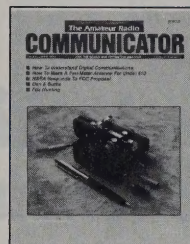
FEATURES

- 6 CW Could Save Your Life**
by Joe Doring, DLIRK
A Remarkable QSO
- 8 Ham Radio News You Can Use**
by Bill Pasternak, WA6ITF
The Washington Newline
- 10 NARA Responds To FCC**
by NARA Staff
NARA Files On "Instant License" Proposal
- 12 How To Make A Two-Meter Antenna**
by Ralph Tyrrell, W1TF
A Simple Antenna To Extend The Range Of Your Two-Meter Handheld For Less Than \$10
- 24 How To Understand Electronics**
by Arthur Human, W2HQQ
Joe Strolin's Fluid-Tuned Radio

DEPARTMENTS

- 2 In My Opinion**
by Don Stoner, W6TNS
Editorial
- 4 How To Inspire Young People**
by Carole Perry, WB2MGP
Tally-Ho
- 14 How To Understand Digital Communications**
by Jerry Marsh, AA7UF
Digital Basics
- 16 How To Find A British Fox**
by D••Y Radio
Electronic Hide & Seek
- 20 Dan and Burke**
Improvising
- 26 What Do You Think?**
- 28 Letters**

ON THE COVER



Gordon Crowhurst, G4ZPY, has done it once again with his latest, a single lever paddle key. It is designed to use your lambic electronic keyer and even has an extra jack installed so you can use another paddle with the same keyer. If you are interested in Gordon's famous paddles, he can be contacted at Paddle Keys International, 41 Mill Dam Lane, Burscough, Ormskirk, Lancs., ENGLAND, L40 7TG.

The Amateur Radio Communicator

The *Amateur Radio Communicator* is published bi-monthly and is the official journal of the National Amateur Radio Association (NARA), P.O. Box 201407, Arlington, TX 76006.

The National Amateur Radio Association is incorporated in the State of Washington and is a non-profit organization as defined in Section 501(c)(3) of the Internal Revenue Service Code.

Organization Goals

The broad goal of NARA is to publicize Amateur Radio and to encourage people to become Amateurs by earning an entry level Novice or Technician Class license.

The organization has five specific goals within this broad framework. These are to a) publicize Amateur Radio to the general public, b) attract young people to the Amateur Radio Service, c) increase the stature and benefits of the Novice and Technician Class licenses, d) represent the interests of Novice and Technician Class Amateurs at the national level and 5) make all Amateurs aware that our radio frequencies are in jeopardy from commercial interests. More specifically:

A. NARA advertises in consumer publications to create public awareness of the Amateur Radio Service.

B. NARA is interested in encouraging

young people to join our fraternity. A core of young people insures growth of the Amateur Radio Service.

C. NARA believes that the Novice and Technician classes are important and respected entry level licenses into the Amateur Radio fraternity. We are committed to increasing their benefits and stature in the Amateur Radio community.

D. NARA is committed to representing the interests of all Novice and Technician Class Amateurs at the national level.

E. Finally, NARA is very concerned that confiscation of frequencies assigned to the Amateur Radio Service will continue. NARA is committed to obtaining new spectrum for the continued growth in numbers of Novice and Technician Class Amateurs.

Membership and Subscriptions

Those joining NARA receive a subscription to *The Amateur Radio Communicator* for one year. The combined cost of membership and magazine is \$10.00 per year in all areas with a U.S. zip code. The NARA membership and subscription to *The Amateur Radio Communicator* cannot be separated.

It is not necessary to hold an Amateur Radio license to become a member of the National Amateur Radio Association. The only "qualification" is an interest in radio communications.

How To Contact NARA

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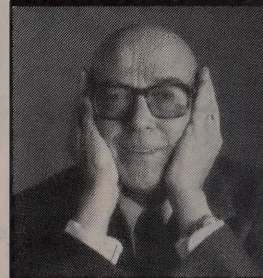
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NARA

NATIONAL AMATEUR RADIO ASSOCIATION

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Is It Time For A Repeater Revolution?

by Don Stoner, W6TNS

A SHORT TIME ago, I visited one of our dealers and got a real shock. The lady, a co-owner and long-time ham, blew me away. In the course of our conversation, she mentioned that if one really needed communications in an emergency, a cellular phone was the best insurance policy. She had recently purchased one and felt much more secure driving through (let's see—what's the politically correct expression?) less fortunate neighborhoods.

Wait just a darn minute. She's a long-time ham, has her choice of "free" handheld radios from the stock on hand, and isn't bashful about talking on ham radio. Yet she still relies on a cellular phone for her safety?

You heard me right. "How come?" I hear you asking. You thought repeaters were supposed to be our lifeline in case of trouble, eh? "You cannot depend on calling the local repeater and having someone help you," she explained. There was no animosity toward newcomers but simply an underlying tone that people just don't give a damn anymore. "I've called for assistance when I know people are listening, and no one answers me. Other times, the existing users tell me to standby until they have finished their conversation," she stated. When she mashes 911 on the little "flip-phone," it always works—there

was always someone immediately ready to help.

The conversation really upset me. In my opinion, this is a sorry state of affairs. While we call it a hobby, ham radio is still a **service**. Part of service is people helping people. NARA has used the safety aspects of having a two-meter handheld as a "hook" for getting interested in ham radio. We said in our ads, "why

Amateurs have a serious problem. While one of the missions of NARA is to guide people in being "good hams," it's pretty tough to change human nature. In lieu of that, I believe every repeater should have a 911 line on in. But that's not very practical either. Many repeaters are in locations where a phone line is not available. In other cases, adding an autopatch to the repeater could be a financial hardship for the owner/operator.

But what about this? Why can't we hams install repeaters that are only connected to a landline, as a service to other hams? With the relaxation in Part 97.113 of the FCC Rules and Regulations, we are somewhat less concerned about what is said in a business context. Keying the proposed repeater would kick off an ID and dial tone. It would be a great "drawing card" for ham radio and a good vehicle for local media publicity on the service hams are providing.

CLOSED REPEATERS

Speaking of repeaters, I've received several letters from newcomers asking about "closed repeaters," what they are, why they are and how one accesses them. I still have not answered their letters because, frankly, I don't know what to tell them.

A closed repeater is one operated by an individual or group and restricted to a select group of users, usually those approved by the individual or group. In other words,

Maybe someone will

write and explain why a

repeater should be closed.

But until I can be

persuaded otherwise, I

think they violate

the spirit of ham radio.

spend all that money for a cellular phone, when you can do almost the same thing on ham radio for less money." In another place, I can recall saying something to the effect that you can buy a two-meter handheld radio for less money than one year of average cellular charges.

If the dealer comments are typical around the country, we

if you are not approved, you may not use the repeater.

In some cases this is done to insure that the users also provide financial support for the ongoing maintenance of the repeater. By joining the group and paying dues, you are allowed to use the repeater.

In other cases, repeaters are closed simply to keep out the "riff-raff." All too often this means newcomers who may, or may not, be very sophisticated. If a ham, at the local radio club or hamfest, seems to have the "right stuff," they are asked to join the repeater group. Otherwise, they can go pound sand.

I know I am going to tick off a bunch of closed repeater operators but, in my opinion, repeaters should be open to everyone. The spectrum they use belongs to all of us, not just a privileged few. Maybe someone will write and explain why a repeater should be closed. But until I can be persuaded otherwise, I

think they violate the spirit of ham radio. I'm incredulous the FCC permitted this concept in the first place. I'm also surprised that one of these closed repeater operators hasn't ticked off a lawyer/ham and gotten sued for violation of some supposed right or freedom.

73 de Don, W6TNS

Country Music Ham

Fans of country-western music know that entertainer Patty Loveless produces chart-topping hits. But now it can be told that Patty can also hold her own in a morse-code roundtable QSO. This is according to *QST* magazine that reports the Kentucky-born songstress is now the holder of Amateur Radio call sign KD4WUJ. *QST* says that Patty, a cousin of singer Loretta Lynn, is married to Emory Gordy, Jr., W4WRO. It was Gordy that got his wife interested in two-way hobby communications. The Gordys make their home in Dallas, Georgia, where Patty is reportedly active on 40-meter CW. *Courtesy of Newsline.*

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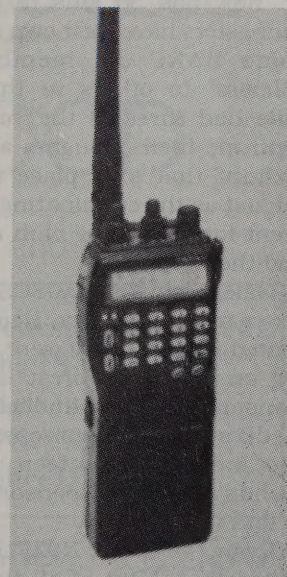
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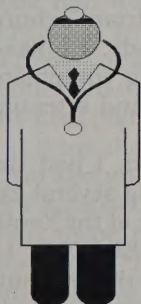
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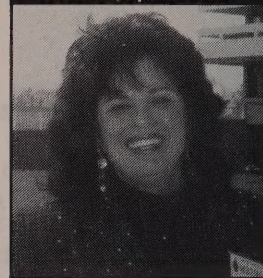
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Tally-Ho!

by Carole Perry, WB2MGP

IT HAS ALWAYS BEEN one of my great pleasures to meet new and interesting people at various hamfests across the country. Several years ago, Rip, NVOM, and Ellie, N0QCX, Van Winkle introduced themselves to me at the Dayton Hamvention. We've stayed in touch and exchanged stories and information ever since.

The Van Winkles sponsor the youth auxiliary of the Boulder Amateur Radio Club in Boulder County, Colorado. Ellie tells me that BARC Jr. now has 36 kids in it. These youngsters have their own nets, and some BARC Jr. members are "Elmers" to others in the group. Ellie had three of the youngsters send me their thoughts about the foxhunt that took place this past August as the culminating summer event for the young club members and their families.

Galen Koepke, WA0SCS, and his six-year-old daughter, Heidi, represented the fox. They went into hiding on National Forest land, and transmitted on a handheld with a 40 dB step attenuator operating on two meters. Seventeen hunters, friends and adult sponsors set out to find their quarry.

Ryan Frandsen, N0ZFU, age 15, writes that, "Out of all the joys of hamming, fox hunting has to be the most fun. It is hilarious to watch everyone running around with a dead-serious look on their faces while trying to find the fox (a



Eric Permut, KB0KQF, is shown holding radio and talking with other Boulder Amateur Radio Club (BARC) members.

"Out of all of the joys of

hamming, fox hunting has

to be the most fun. It is

hilarious to watch everyone

running around...trying

to find the fox

(a handheld)."

handheld). After the fox is found, everyone is rewarded with cookies and lemonade. Then the new fox hides."

Seth Wilson, N0URO, is 13 years old and is just a code test away from an Extra class license. Seth writes me that he enjoyed the idea of kids working together with their "Elmers" on the pedestrian foxhunt in the parks and woods. He liked using direction finding equipment and "nifty" antennae and attenuators.

Last year at Dayton, I had the pleasure of introducing several exceptional young people at the Youth Forum. Eric Permut, KB0KQF, 13 years old, was one of the presenters at the forum. He is very actively



BARC Jr. and BARC members are shown getting ready for the foxhunt

involved in BARC Jr. and is a net control where he helps others with technical problems. Eric enjoys the foxhunts because he gets to practice skills using directional antennae and signal strength meters to track the approximate direction of the fox.

Eric stresses that, "These foxhunts are mainly just for practice and for fun, but the skill can be used in real foxhunts in emergency situations. BARC Jr. foxhunts are done on foot, since BARC Jr. members can't drive cars. It is still a realistic simulation. They usually take place in parks, open land, and fields. The fox is an "Elmer" concealed behind rocks and other objects, transmitting a beacon on a two-meter simplex frequency. On one of the hunts, we were able to use an automatic "fox" which was a code oscillator and transmitter, all inside a case."

All of the youngsters said that the advantages of participating in the foxhunts included sharpening DF'ing skills and learning how to communicate and work together in teams. Eric pointed out that the most interesting hunts occur when there is varied terrain, so the radio waves bounce off hills and slopes, which makes the hunting much more difficult.

All the kids said that the experience was one of great fun. They all conveyed a feeling of satisfaction and felt as though they had learned new skills on a more advanced level. After every foxhunt, the "Elmers" teach the children new techniques that they can experiment with on the next foxhunt.

I think that the Boulder Amateur Radio Club should be commended for its excellent approaches of encouraging young children to be challenged by radio and for motivating them to actively enjoy all the fun activities as well.

73 from Carol, WB2MGP

Dayton Hamvention Youth Forum

According to Carole Perry, WB2MGP the Dayton 1994 Hamvention Youth Forum will be bigger and better than ever. Preparations are already underway to interview speakers for this important forum. Any youngster under the age of 18 who is a licensed ham radio operator may be considered. Applicants should be articulate and enthusiastic about their Amateur radio activities.

Each child will be allotted 10 minutes to address what we hope will be an audience filled with young people who have come to hear what their peers have to say about Amateur radio. In the past many young people have gone on to get licensed after being motivated by the terrific young speakers who have conveyed the fun and enjoyment to be had in radio.

Interested children should send a brief outline of their radio activities to Carole Perry P.O. Box 131646 Staten Island, NY 10314. Please include a phone number. All hams are invited to bring a child with them to this forum.



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A Remarkable QSO

by Joe Doring, DLIRK

DURING WW2, I served as Lance Corporal in a special German army signal corps unit in the Afrika Korps. We intercepted enemy tactical radio communications in the African war theater—we were General Erwin Rommel's ears.

Late afternoon on May 7, 1943—five days before we surrendered Tunisia—the company commander

asked if I would like to communicate with the enemy. "Sure I would," I said.

My first thought was that it was the surrender message, ending the fighting in Africa. But the message was about a target not to be bombed. Since Allied bombers flew in from the west, the message had to be addressed to the British First Army, which operated in that area. So I chose the headquarters radio net of British 1st Army, noted the frequency and callsigns, took the message and went to the transmitter van about one-half mile from our receiving site.

The British net was busy that night, so I had to wait a long time. While I waited, I practiced with the straight key, which I hadn't used for a year or so. My job, sitting in front of a receiver copying enemy radio traffic, didn't require sending. Finally the net worked its last traffic. With the 80-watt Lorenz transmitter carefully set to zero-beat, and using a "borrowed" callsign, I sent, "QTC 1 QRK? K." QRK 5 was the answer, so I sent: "DAH DI DAH DI DAH, TO HQ ALLIED EXPEDITIONARY FORCES IN AFRICA FROM HQ AXIS FORCES IN AFRICA."

Then the guy whose call I had borrowed broke in: "THAT'S NOT ME, IT IS A PROPAGANDA MESSAGE FROM THE ENEMY." But I broke in with: "ITS NOT PROPAGANDA, BUT LIFE OR DEATH FOR YOUR OWN PEOPLE." Finally the HQ station told me to go ahead with my message.

I sent, "TWO SHIPS ARE IN THE HARBOR AT TUNIS. ONE IS A FREIGHTER WITH 600 ALLIED

PRISONERS AND THE OTHER IS HOSPITAL SHIP. DO NOT BOMB THOSE SHIPS AND SAVE THE LIVES OF YOUR OWN PEOPLE."

I received "QSU" for my message and said I would QRX tomorrow—same time, same frequency—for a possible reply, but no reply was received in the next five days.

The event faded in my memory during the years that followed—until 1950 when I bought a book about the war in Africa. In it I found the message I had sent and the reaction to it. General Alexander, the British 1st Army Commander, had met captured German General von Amim, and thanked him for the message that saved 600 of his soldiers. In return, he agreed to send 600 wounded German soldiers to Italy on a hospital ship.

So, in a small way I helped add a human touch in this cruel war. I call this my only really worthwhile QSO-ever!

This story, originally in the winter "91 Focus," was submitted to the Northern California DX Club's "DXer"—AF6S Editor—by W6CF.

This article is typical of those which appear in a new ham newsletter called *Ham AdventureS*, which is published by our advertiser, Rusprint. *Ham AdventureS* is dedicated to letting Amateur Radio folks tell about their radio adventures. Frank Anderton, the Editor, has done a superb job of putting together material that will interest hams of all ages and all technical levels.

If you would like a sample copy, drop a note to Frank at *Ham AdventureS*, 26037 220th Terrace, Spring Hill, KS 66083.

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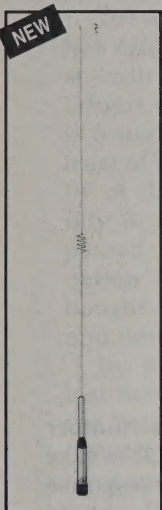
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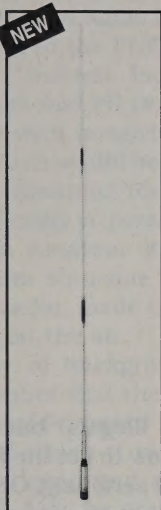
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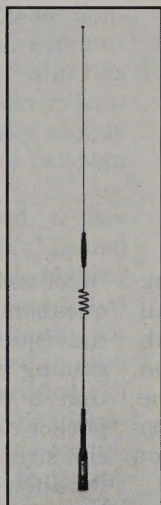
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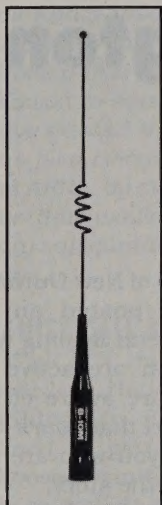
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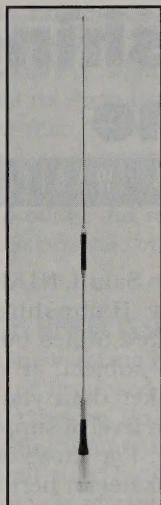
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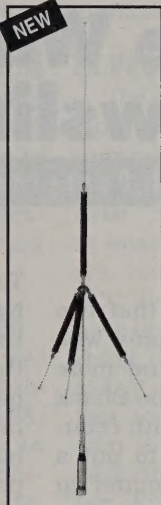
B-20/B-20NMO
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Gain & Wave:
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446MHz 5.0dB 5/8 wave x 2
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Connector: PL-259 or NMO style
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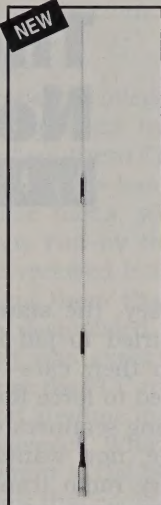
B-10/B-10NMO
Dual-Band 146/446 MHz
Gain & Wave:
146MHz -dB 1/4 wave
446MHz 2.15dB 1/2 wave
VSWR: Less than 1.5:1
144-148MHz, 440-450MHz
Max Power: 50 watts
Length: 12"
Connector: PL-259 or NMO style
Construction: Black, cellular look-a-like



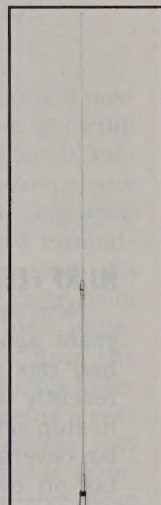
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Tri-Band 146/220/446MHz
Gain & Wave:
146MHz 2.15dB 1/2 wave
220MHz 3.6dB 5/8 wave
446MHz 6.0dB 5/8 wave x 2
VSWR: 1.5:1 or less
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Length: 3'
Connector: CX-224 PL-259 CX-224NMO NMO Style



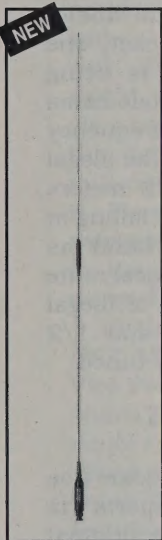
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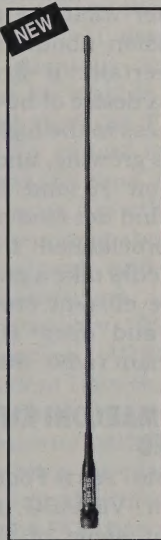
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Length: 4' 10"
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Length: 4' 8"
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Gain & Wave:
146MHz 1.5dBi 1/4 wave
446MHz 3.2dBi 5/8 wave
Max Power: 10 watts
Length: 15.5"
Connector: BNC



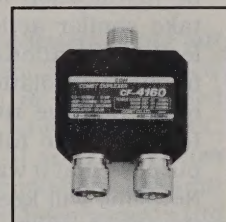
CH-32
Miracle Baby 146/446MHz HT Antenna. Compact design, the smallest HT antenna available!
Gain & Wave: 0dB 1/4 wave
VSWR: 1.5:1 or less
Max Power: 10 watts
Length: 1.75"
Connector: BNC



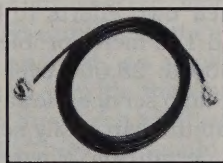
RS-21
Trunk, hatchback, rear door (van, blazer, etc.) mount. Adjustable to virtually ANY angle. Rubber-coated base protects vehicle paint.



RS-820
Heavy-duty low profile trunk lip or hatch back mount. Rubber coated base protects vehicle paint.



CF-4160K, CF-4160I, CF-4160J
146/446 MHz
Band Pass, Ins. Loss, Max Power:
1.3-150MHz, 0.1dB, 800W PEP
400-540MHz, 0.2dB, 500W PEP
Isolation: 60dB
CONNECTORS:
CF-4160K CF-4160I CF-4160J
Output: SO-239 SO-239 SO-239
Low In: PL-259 PL-259 SO-239
High In: PL-259 N-Male SO-239



3D4M Standard Cable Assembly
13.5 feet of low loss coax. Gold plated UHF (PL-259/SO-239) connectors.

3D5M Standard Cable Assembly
Same as 3D4M, but 17 feet of coax.



CK-5M Deluxe Cable Assembly
13 feet double shielded very low loss coax. + 12" RG-188 teflon coax. Gold-plated UHF (PL-259/SO-239) connectors. Allows easy entry from a lip-mount w/o causing coax or weather strip damage.

CK-5M5 Deluxe Cable Assembly
Same as CK-5M, but 17 feet of coax.

NEW

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The Washington Newsline

by Bill Pasternak, WA6ITF

NJ RF FEE

New Jersey, the state that two years ago tried to jail hams who had rigs in their cars—and more recently tried to force Radio Shack to stop selling scanners with cellular coverage, now wants to put a tax on every radio transmitter in the state! The New Jersey Department of Environmental Protection and Energy is proposing a fee on owners of all RF-generating devices, including transmitters that are both commercially and privately owned.

Those outside New Jersey aren't out of the clear on this issue. If this proposal passes into law, it could be justification for other states to take similar action. It might even lead to a national ruling on radio frequency radiation that could seriously damage the ability of Amateur Radio to fulfill the basis and purpose that it was created to serve. Newsline will keep you updated on this one.

TAKE BACK 11 METERS

If you are not on packet, then you may not be aware that a growing number of hams around the nation are sounding a call to arms which aims at taking part of 11 meters back from Citizen's Radio and turning it over to Novice and no-code Technician class hams.

No, it's not a joke. In fact, those involved seem very serious and are looking to do it the right way. The political way—by petitioning the FCC to make the change.

The debate on this issue started a short time ago on packet when

Tom Saluti, N1KIO of New Durham, New Hampshire, posted an All United States bulletin dealing with the subject. If you are active on packet then you are aware of the high level of support that Tom's idea has. For those of you who are not packeteers, here's the story.

In his posting, N1KIO called the 11-meter band—more accurately the 10 and 1/2-meter “freeband”—as being, and we quote—a wasteland that even the government can't use. This, Tom says, is because operators have taken it over from 26.000 to 28.000 MHz and sometimes even make excursions into the 10-meter ham band.

He went on to note that with the FCC having taken away some frequencies from Amateur Radio that it might be time for them to give some spectrum back. This, by abandoning their own efforts to handle the 10 and 1/2 meter problem and turn 27.500 to 28.000 over to the Amateur Radio service. He says that radio Amateurs can easily solve the mess by permitting Novices and Techs to run CW and data from 27.500 to 27.700 and voice operation from 27.700 to 28.000 MHz.

Since its posting, the N1KIO bulletin has been highly controversial—not over the idea of running the illegal operators off of 11 meters, but getting it reassigned as a ham radio band. Almost everyone who commented wants to see that happen, but the problem seems to be on *how* to make it happen.

Many hams appear to have a high level of animosity toward the

“freeband” illegals, but a number question how to get the FCC to take the request seriously. One response gaining a lot of support suggests that a petition be circulated by packet radio where signatures and call signs could be added. Then after a few months, a final print out can be sent to the Private Radio Bureau as a rule making request.

No matter what the outcome of the discussion about packet, one thing is certain: a fire is being fanned by a desire of no-code hams to have access to the high frequency bands. It is growing, and the illegal operators on 10 and 1/2 meters may soon find hot cinders falling in their self proclaimed “freeband” as radio Amateurs take a political route to oust the current crop of illegal operators and open 10 and 1/2 meters to ham radio. Stay tuned.

ORIGINAL MARCONI KITES DISCOVERED

This is no “April Fool” joke! Joe Chamberlin, VE3ABG, reports via packet that some of the original kites used in the early 1900's by radio pioneer Guglielmo Marconi have been found. The kites were discovered during a recent Marconi plant clean-up in Montreal. Plans are to donate some of the kites to the Marconi Museum in St. John's, Newfoundland. This is where early trans-Atlantic transmissions took place from Signal Hill. VE3ABG also says that contrary to rumors going around, the Marconi company officials do not plan on offering them up for public auction.

ARRL: NO TO INSTANT LICENSING

The American Radio Relay League has said no to the FCC's idea for a so-called "Instant License." The League says that PR Docket 93-267 is fraught with misgivings, not the least of which would be the inability of the Amateur Radio community to identify a person who has passed an Amateur Radio examination from someone who simply bought a radio, made up a call sign and went on the air.

By way of background, it was last November that the FCC issued the Notice of Proposed Rule Making (NPRM) in which it proposed that temporary operating authority for up to 120 days be granted to anyone who had earned a Certificate of Successful Completion of Examination (CSCE) by passing the examination elements required to get any class of Amateur Radio license. The FCC put very few limitations on the program. It did say that any person with a history of non-compliance with the Amateur Service Rules would not be eligible to apply. It also noted that the FCC retained the right to cancel the operating authority at any time. And that was it. There were no other clear-cut safeguards against abuses included in the proposal, and that's what worried many hams.

In the January 1994 edition of *QST* Magazine, ARRL Executive Vice-President Dave Sumner, K1ZZ, states that the League has several major concerns with the proposal. These are with the planned system for on-the-air identification and the fact that the FCC has not proposed any safeguards to keep massive bootlegging from occurring. Sumner notes the proposed call sign system would not in all cases conform to ITU regulations. He also points out that by using self-assigned call letters, there would be absolutely no way for local Amateurs, concerned about the possibility of a non-licensed operator being in their midst, to check on the validity of the call sign being used.

The ARRL is actively urging its members to take a strong position

against the implementation of PR Docket 93-267. It has suggested that all concerned radio Amateurs write in opposition to the "Instant License" proposal from the FCC.

(Editors Note: The National Amateur Radio Association has also filed comments on this proposal. We feel strongly that newcomers should be allowed to operate as soon as they have passed their test. Thus NARA has filed comments in opposition to the ARRL, by suggesting an alternative that would provide the necessary safeguards. See details on next page.)

VANITY CALL SIGN NPRM ISSUED

The FCC has now formally released its Notice of Proposed Rule Making, in PR Docket 93-305, aimed at permitting Amateurs to choose a vanity call sign. Individuals as well as trustees of club stations will be eligible to request an available call sign from the block assigned to their license class or a lower license class. A fee will be required for a vanity call sign. The Communications Act specifies a fee of \$7.00 per year for Amateur service vanity call signs. It also allows the Commission to require payment of the fee in advance for a number of years not to exceed the relevant license term. Fee issues would be resolved under a separate FCC rule making proceeding, and the vanity call sign system would not be started until then, the FCC said.

If enacted, an applicant would have to provide the Commission a list of up to ten total call signs desired. The FCC would assign the first available requested call sign from the applicant's list. If none of the desired call signs was available, the applicant's current call sign would be reassigned. Call signs of lapsed or deceased licensees would not be available for reassignment for two years. A call sign relinquished under the vanity call sign program would be available for reassignment immediately.

The FCC said that even with its new automated licensing process it did not expect to be able to offer

Amateurs on-line access in order to check for call sign availability. It did, however, ask for comments on how such a service could be provided. The FCC says that its eventual goal is to accept all license applications electronically.

LA PROBE

The probe into allegations of possible wrong-doing by a growing number of southern California Volunteer Examiners has taken a new twist. Some hams, who upgraded at sessions run by these examiners, have received letters from the FCC telling them that their tests have been disqualified. This is something that was expected from the outset since the FCC routinely takes this action anytime it deems a session is suspect. What makes this case different is the possible number of hams that could receive these notices.

Newsline has learned that some of the test sessions involved took place almost a year ago. This means that some of those returning to lesser class licenses may themselves have become Volunteer Examiners and that the test sessions that they administered could be disqualified as well.

Right now, the letters going out order the recipient to immediately cease using his or her upgraded privileges and to forward to the FCC by registered mail any Certificates of Successful Completion of Examination that have been awarded to them. The letters also reportedly say that in cases where the certificates have been used for further upgrade, that the applicant must provide to the FCC the date, time and location of the testing session, the name of the Volunteer Examination Coordinator (VEC) and the names, call signs and addresses of the Volunteer Examiners (VE) who provided the test.

If our information is correct, and we have reason to believe that it is, then as many as 200 Southern California upgrades could be affected.

73, Bill, WA6ITF

□

NARA Files On "Instant License" Proposal

by NARA Staff

AS MENTIONED on page nine, *The Washington Newsline*, NARA was opposed to the FCC Notice of Proposed Rule Making as it was presented. After analyzing the potential problems in its submission to the FCC, NARA made an interesting counter-suggestion to overcome the opposition to this proposal. It states, in part:

There are other, more practical, reasons why the use of initials in the temporary operating authority call letters are not in the best interest of the Amateur Radio Service.

The most serious aspect is that of accountability. In the event that it is necessary for the Commission to contact a violator, it would be difficult at best. First, which VE granted the temporary operating authority? Once this was determined, how would the Commission contact the violator? Which session did WZ4DLS attend? Who has the records and how is the DLS suffix found when the CSCE is not filed in alphabetical order?

It is reasonable to assume that due to the shortage of human resources and the difficulty of locating the lawbreaker, the Commission might be tempted to overlook violators that, under normal circumstances, would be identified and cited.

There is also a problem of duplicate calls. Admittedly this is a

minor concern but it will happen, particularly with several VE's in a given area. And when it happens, it will create extra work for the Commission, the VEC and the VEs involved.

POSITION OF THE NATIONAL AMATEUR RADIO ASSOCIATION

For the reasons stated above, NARA must oppose the petition as presented. However, as we have previously stated, this appears to be an excellent concept for the reasons discussed.

Therefore, NARA proposes a relatively simple revision to section 97.119(g) which would make the concept acceptable. Other sections of the Rules and Regulations, as provided in PR Docket 93-267, would remain unchanged. NARA recommends that:

(1) all Volunteer Examiner groups be permitted to apply for a WZ prefix call sign, either sequentially issued or under the proposed Vanity Call Sign System, as discussed in 93-305.

(2) all Volunteer Examiner groups be permitted to grant a temporary operating authority to the successful applicant and that he or she be permitted to use the call issued by the Commission to the VE group with a numerical suffix. The numerical suffix to their call letters would be issued in a sequential manner up to 9999 and, at that point, revert to the digit one.

(3) the VE call letters and numerical suffix be added to the "Manifest of Applicants," supplied by the VE to the VEC and that the form be modified to include the mailing address of the successful applicant, who is using the temporary operating authority and call letters with numerical suffix.

(4) the VEC become the source of information in the manifest, in the event the Commission must communicate with anyone using the temporary operating authority and call letters with numerical suffix.

DISCUSSION ON PROPOSED REVISION TO PR DOCKET 93-267

The revision, proposed by NARA, is simple to implement and requires a minimum of changes in the Commission Rules and Regulations. Further, it accomplishes the intended purpose of RM-8288, but with the addition of accountability. It creates virtually no extra work for the VE group, yet virtually eliminates questions regarding the issuance of call letters.

The revision, proposed by NARA, may create a slight additional increase in the workload of the VEC, but only in the instance that the Commission needs to contact someone operating under the temporary operating authority.

(This is a reprint of material submitted to FCC. We would not sign document.)

73 NARA Staff





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IC-735 Gen Cvg Xcvr	1239.00	Call \$
IC-728 New All-Band HF	1105.00	Call \$
IC-729 All-Band HF Plus 6 Meters	1492.00	Call \$
IC-2KL 500W Amp	2260.00	Call \$
IC-4KL 1kW Amp	7865.00	Call \$

Receivers

IC-R9000 100kHz to 1999.8 MHz	6265.00	Call \$
IC-R7100 25 MHz - 2 GHz	1585.00	Call \$
IC-R71A 100 kHz - 30 MHz Rcvr	1279.00	Call \$
IC-R1 100 kHz - 1300 MHz	567.00	Call \$
IC-R72 30 kHz - 30 MHz	1145.00	Call \$
IC-R100 100 kHz - 1856 MHz Rcvr	772.00	Call \$

VHF

IC-21A 2 Meter HT	372.00	Call \$
IC-P2AT New 2 Meter HT	399.00	Call \$
IC-2GAT New 7W HT	425.00	Call \$
IC-2SAT Micro Sized HT	372.00	Call \$
IC-2SRA 2M HT/Scanner	599.00	Call \$
IC-229A/H 25/50W 2 Meter Mobile	452/465	Call \$
IC-901 New Remote Mount Mobile	465.00	Call \$

UHF

IC-41A 440 MHz HT	452.00	Call \$
IC-P4AT New 70cm HT	492.00	Call \$
IC-4SRA 70cm w/Scanner HT	612.00	Call \$
IC-W2A 2M/70cm New HT	599.00	Call \$
IC-W21AT New Dual Band HT	625.00	Call \$
IC-V21AT New 2M/220 Dual-Band HT	783.00	Call \$
IC-24AT New 2M/440 Mini HT	465.00	Call \$
IC-41A 2M 440 1.2 GHz HT	1199.00	Call \$
IC-2330 2M/220 Mobile	865.00	Call \$
IC-2410H 2M/70cm Mobile	865.00	Call \$

220 MHz

IC-3SAT Micro Sized HT	385.00	Call \$
IC-P3AT Mini FM HT	452.00	Call \$
IC-X2A 440 MHz/1.2 GHz HT	772.00	Call \$
IC-12GAT Super HT	505.00	Call \$

KENWOOD



HF Equipment

	SAVE	List	Jun's
TS-950SDX			
New Digital Processor HF	\$100	4799.95	Call \$
TS-850S/AT			
New All Mode All Band	\$50	2149.95	Call \$
TS-850S			
New All Mode All Band		1949.95	Call \$
TS-450S/AT New HF Xcvr	\$50	1639.95	Call \$
TS-450S New HF Xcvr	\$50	1439.95	Call \$
TS-140S Gen Cvg Xcvr		1079.95	Call \$
TS-690S HF Plus 6M Xcvr		1699.95	Call \$
TS-50S New HF Mobile	\$30	1279.95	Call \$
TL-922A HF Amplifier		2099.95	Call \$

Receivers

R-5000 100 kHz - 30 MHz		1179.95	Call \$
R-2000 150 kHz - 30 MHz	\$15	849.95	Call \$

VHF

TH-22AT New 2 Meter HT		349.95	Call \$
TH-28A New 2 Meter HT	\$20	399.95	Call \$
TH-78A New 2M/70cm HT	\$20	449.95	Call \$
TM-742A 2M/440 Mobile	\$30	929.95	Call \$
TM-641A 2M/220 Triple Receiver		929.95	Call \$
TM-241A 50W Mobile FM	\$20	459.95	Call \$
TR-751A All Mode Mobile 25W		769.95	Call \$

UHF

TH-42AT New 70cm HT	349.95	Call \$
TH-48A New 70cm HT	449.95	Call \$
TM-441A Compact 35W Mobile	529.95	Call \$
TM-541A Compact 1.2 GHz Mobile	649.95	Call \$
TM-941A 2M/440/1.2 GHz	N/A	Call \$
TM-732A 2M/440 Mobile	\$30 769.95	Call \$
TM-942A 2M/440 MHz 1200 MHz	1279.95	Call \$

220 MHz

TM-331A Compact Mobile	519.95	Call \$
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YAesu



HF Equipment

	SAVE	List	Jun's
FT-1000D Top Performer	\$100	4919.00	Call \$
FT-990 All Mode New	\$50	2579.00	Call \$
FT-747 GX Economical Performer	\$35	909.00	Call \$
FT-890 HF Base w/ 1-30 MHz Rec	\$35	1439.00	Call \$
FT-767GX Band New	\$35	2299.00	Call \$
FL-7000 15M-160M Solid State Amp		2459.00	Call \$

Receivers

FRG-100B New Mini Receiver		669.00	Call \$
VHF			
FT-416/25B New 2 Meter HT	\$15	415.00	Call \$
FT-411 New 2M Loaded HT	\$15	369.00	Call \$
FT-26 Mini 2 Meter HT		309.00	Call \$
FT-23 R/17 Mini HT		299.00	Call \$
FT-2400 50 Watt Mobile	\$15	439.00	Call \$
FT-290R/690R-6M All Mode Portable		699.00	Call \$

UHF

FT-816/25 New 440 MHz HT		469.00	Call \$
FT-76 Mini 440 MHz HT		329.00	Call \$
FT-815 70cm HT		N/A	Call \$
FT-911 Compact 1.2 GHz HT		529.00	Call \$
FT-790 R/II 70cm/25W Mobile		819.00	Call \$
FT-912 1.2GHz 10W Mobile		709.00	Call \$

VHF/UHF Full Duplex

FT-736R New All Mode 2M/70cm	\$35	2149.00	Call \$
Dual Bander			
FT-470 Compact 2M/70cm HT	\$25	509.00	Call \$
FT-530 2M/70cm HT	\$25	569.00	Call \$

FT-5100

Ultra Compact 2M/440 Mobile	\$25	749.00	Call \$
FT-5200			
Ultra Compact 2M/440 Mobile	\$25	789.00	Call \$
FT-6200			
Ultra Compact 440/1.2 GHz Mobile	\$25	879.00	Call \$

Repeaters

FTR-2410 2M Repeaters		1247.00	Call \$
FTR-5410 70cm Repeaters		1247.00	Call \$

Rotators

G-800SDX Med/Hvy Duty 20 Sq Ft	\$25	439.00	Call \$
G1000SDX Heavy Duty 22 Sq Ft	\$25	539.00	Call \$

STANDARD

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Handheld



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C168A 2M, Mini HT
C188A 2M, Mini Deluxe HT
C228A 2M/220 HT
C558A 2M/440 HT
C288A 220 MHz HT
C468A 440 MHz, Mini HT
C628A 440/1.2 GHz, HT
C5608 DA 2M/440 Mobile

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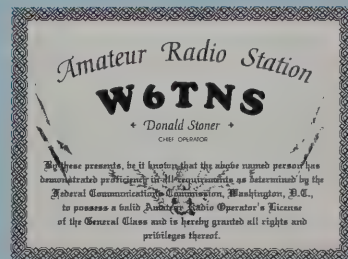
JUN'S BARGAIN BOX

ICOM	SALE	LIST
IC-901 2/70cm Mobile	\$799.95	\$1119.95
IC-UX39A 220 Module	\$199.95	\$517.95
IC-W2A 2 meter HT	\$399.95	\$599.95
IC-2GAT 7w 2 mtr. HT	\$289.95	\$429.95
IC-02AT 5w 2 mtr. HT	\$269.95	\$399.95
IC-03AT 220 Handheld	\$269.95	\$399.95
IC-4SRA 440/Scanner	\$479.95	\$612.95
KENWOOD		
TL-922A 2K Amplifier		CALL
YAesu	SALE	LIST
FT-416 2 meter HT	\$289.95	\$419.95

WALLPAPER YOUR SHACK

All hams love wallpaper to impress their friends and intimidate their neighbors.

Now you can buy a certificate that says you are a ham. Trader (4290 Bells Ferry Rd., Suite 106-36, Kennesaw, GA 30144) offers the certificate shown for \$4.95. It is attractive on parchment type paper and measures 8-1/2 X 11 inches.



A Simple Antenna To Extend The Range Of Your Two-Meter Handheld For Less Than \$10

by Ralph Tyrrell, W1TF

IF YOU ARE CLOSE TO a repeater, the only antenna that you may need is the "rubber duck" that came with your handheld. However, if you are trying to contact others on a direct channel or want to use a repeater that is further away, you need some help in the form of a better antenna.

An Inexpensive, Easy-To-Build Groundplane—All the materials needed to build this antenna came from the local ham store and a hardware store (See List 1). The UG-225 adaptor is used to make the connection between the PL-259 connector on the coax cable and the BNC connector on your handheld radio.

Parts List

Available at all ham radio stores:

- SO-239 Coax fitting, chassis mount
 - 20' (or as required) with PL-259 connector attached.
 - UG-225 Adapter
- Cost of these parts, about \$3.00

Available from your hardware store:

- 40" of #12, two conductor house wiring, with ground wire
 - 1" x 2" x 8' wood stud hose clamp to fit over PL-259 and 1" x 2", size 20 or 44 mm.
- Cost of these parts, about \$3.00

Make sure that the solder that you use is rosin core. Acid core solder is used for plumbing and **should not** be used for electrical connections.

Building The Antenna—Strip all insulation from the wires. I put the end of the wire in a vise and pulled the insulation free. Take one of the 40-inch wire lengths and bend it into a long U-shape. Insert the wire ends through the chassis mounting holes in the SO-239 connector (See Figure 1). Pull the ends of the wire out as shown. You may mount the coax fitting in a small vise, if you protect the threads of the fitting with several layers of tape before mounting it in the vise. Apply solder and heat from the soldering iron to the wire and coax fitting until the solder flows smoothly.

I used a 50-watt soldering iron, a larger iron would heat the parts quicker. The 50-watt iron will do the job, but it takes a couple of minutes to get the wire plus coax fitting hot enough for the solder to flow.

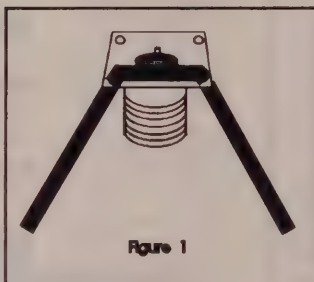


Figure 1

Next bend a second 40-inch wire and fit it into the other set of holes, and solder it in place. Cut a piece of wire 20 inches long. Tin (apply solder and heat from the soldering iron) one end of the wire. Tin the SO-239 center pin. Connect the 20-inch wire and the SO-239 fitting.

Heat the joint until the solder flows smoothly. It may be necessary to add a little more solder. The coax fitting should be very hot at this time. Let it cool for several minutes before touching any part of it.

Cutting The Wires To Length And Mounting The Antenna—I made the wires longer than needed on this antenna. I used a forward/reflected Watt meter to check the VSWR (Voltage Standing Wave Ratio). The wire lengths were trimmed until I had a good VSWR. If you cut the wire lengths as shown, the antenna should work well. It is prob-

ably not necessary for you to measure VSWR if a meter is not available. The final wire lengths should be as shown in Figure 3. Not all radials are shown in this drawing, but all radials are the same length. The lengths are not critical. However, try to get the lengths within 1/4-inch of the

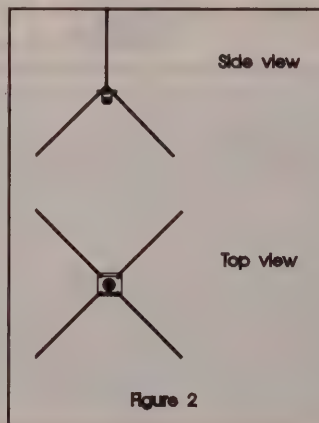


Figure 2

HOW TO MAKE A TWO-METER ANTENNA

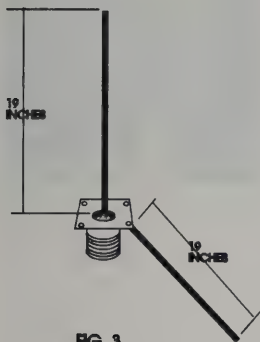


FIG 3

fitting to the end of the 1" x 2" x 8' piece of wood, by using the hose clamp. See Figure 4. To show the clamp and mounting detail better, not all radials are shown. Arrange the wires as shown in Figure 2. The radials should be bent down at about 45 degrees. Adjustment by eye is good enough. The wire used for the antenna elements is soft copper and therefore easily bent.

Since the antenna elements are easily bent, and the antenna fittings are not waterproof, I do not suggest mounting it outside. I mounted the antenna in an attic space which was about six feet above the normal living area. I used about 25 feet of RG-58 coax cable. The loss in this type of cable at 146 MHz is high enough that you should keep the cable length to the shortest length possible.

However, if you wish to mount it outside, tape up the joint where the coax cable is attached to the SO-239 with Scotch #33 or similar black

plastic tape. You will get even more range with the antenna mounted outside the house.

Results—I listened to several repeaters that are about 40 miles from my home. Generally they were unreadable or very noisy when using the "rubber duck" antenna. On the ground plain antenna the repeaters became readable. I was not able to make any contacts into these repeaters with the two watts from my handheld. The local repeater is about 12 miles from my home and the repeater antenna is not very high. With the "rubber duck" antenna and handheld on the two-watt power position I could work the repeater, but my signal was

noisy. Using the ground plane antenna I could switch the handheld power switch to the 400 mW (0.4 watts) position, and have a full quieting signal into the repeater and make the battery charge last longer.

If you make this antenna you are to be congratulated, because you have built an important part of your Amateur Radio station.

73, Ralph Tyrrell, W1TF

DEFINITIONS

Tin—To apply solder and heat to a wire end or a terminal. A tinned wire may be quickly soldered to a tinned terminal, when heat is applied from a soldering iron.

VSWR—Voltage Standing Wave Ratio, also referred to as SWR or simply Standing Wave Ratio. It is the ratio of the maximum voltage across a transmission line to the minimum voltage across a transmission line. The best VSWR is 1:1 (one-to-one). A poor VSWR would be anything higher than 3:1. The VSWR value indicates how well the impedance of the antenna matches the impedance of the transmission line. The maximum power is transferred from the transmission line to the antenna when the VSWR is 1:1.

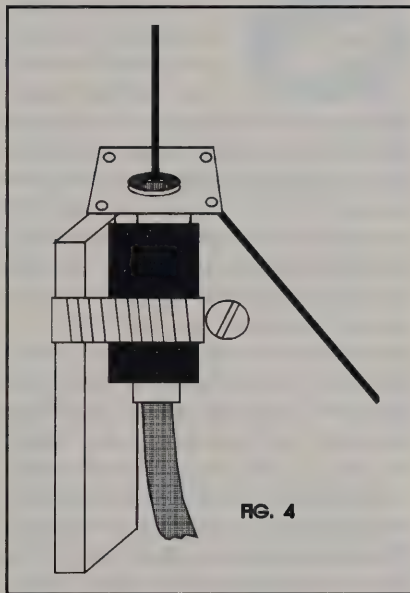


FIG. 4

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Digital Basics

by Jerry Marsh, AA7UF

Some Amateur radio operators are intimidated by the recent advent of digital communications, including packet radio. This series is dedicated to helping those Amateurs.

SOME AMATEUR radio operators are intimidated by the recent advent of digital communications, including Packet Radio.

This is understandable as there is a whole new terminology and set of concepts associated with this new aspect of the hobby. In order to become knowledgeable about digital communications, the average Amateur may need to learn as much about digital communications as he or she did to become an Amateur in the first place. This series is dedicated to helping those Amateurs who feel they are computer illiterate and would like to change that.

Fundamental to the understanding of digital communications is a basic understanding of the difference between digital and analog communications.

Examples of analog communications (not just in the Amateur radio sense) are speech and music. If you were to sample an analog transmission and graph amplitude or volume versus time, you might see something like that shown in Figure 1. Characteristic of an analog signal is the fact that the amplitude of the signal is continuously variable.

That is, at any point in time, the amplitude might be very high positive, very high negative, or zero, or anywhere in between. The strength of the signal (amplitude) at any point in time is significant, and if not reproduced faithfully will result in a distorted signal.

A graph of a digital transmission, in contrast, typically looks something like Figure 2. At any point in time, the amplitude of the signal is either "high" or "low". There are only two states to such a signal. We often think of these as 1 and 0, or ON and OFF. Information is encoded in a series of these ON and OFF signals. The key distinction between a digital signal and an analog signal is that it is NOT continuously variable in amplitude. The usefulness of this distinction can be illustrated by the following examples.

Suppose I had a vintage unscratched copy of my favorite record and my cousin wanted a copy of it. I might take an audio (analog) recorder and make a copy of it. Suppose my cousin had a friend who wanted a copy of his copy. My cousin might again take an audio recorder and make a copy of his copy. Suppose this process was repeated again and again until, as chance would have it, my next door neighbor ended up with a tenth generation copy of my original. As fate would have it, my dog bounds through the house and cracks my original recording. Discovering that my neighbor has a copy of the

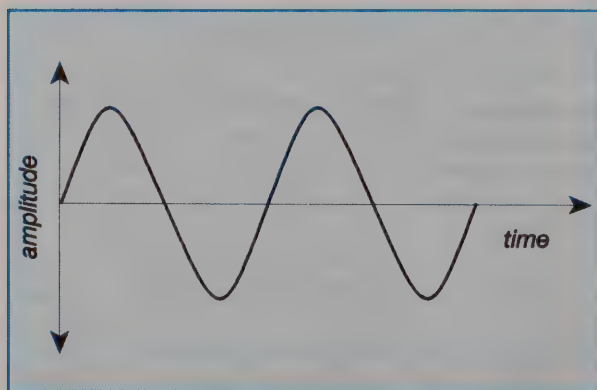


Figure 1

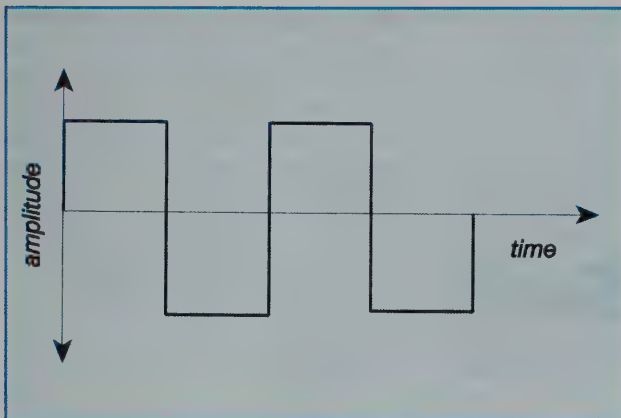


Figure 2

cherished recording, I borrow it and make an eleventh generation copy. Would I be happy with the sound quality of this copy?

Undoubtedly not! Each successive copy of the original would introduce noise, variations in speed, and other distortions to the music. Even with the best of recording equipment, the imperfections introduced would be propagated and increased with each successive copy. No analog copy is ever as good as the source from which it is made.

Now let's change the example.

I have just finished writing the ultimate CW code practice program. My cousin wants to learn Morse Code, so I make a copy for him. Again multiple generational copies of the program are made and finally my next door neighbor ends up with a tenth generation copy of my original. My wife is cleaning out my computer room, and unknowingly throws out the diskette with my program on it. Not to fear, I go next door and get an eleventh generation copy of my own program. Am I happy again? You bet!

What is the difference? The difference is my Morse Code program is stored on the diskette in a digital form, not in analog form.

The ones and zeros (or ONs and OFFs) which make up my program are stored as distinct magnetic spots on the disk which have one of two magnetic polarities. When the diskette reader in the computer reads the little spots, it only has to determine if each spot corre-

sponds to a 1 or a 0. That information is then transferred to another spot on the new disk. The magnetic spots on the new disk are entirely regenerated from scratch based on the ones and zeros read from the source disk. When the computer is reading the disk, there may be minor variations in the digital signal because of minor variations in the disk surface or noise. But because the computer circuitry is only concerned with distinguishing between a one or a zero, an ON or an OFF, it is able to ignore the minor variations in signal level and positively tell the disk write circuitry on the diskette being created to definitely write a one or a zero as the case may be.

Short of some malfunction in the computer hardware, the new disk is magnetically encoded IDENTICALLY to the source disk. Each subsequent generational copy of the disk is also identical to the original.

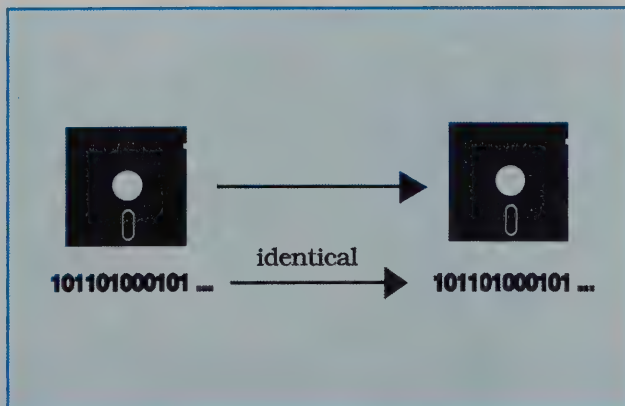


Figure 3

Thus, when I go next door to get an eleventh generational copy, it is as good as the original.

In the last several years, compact disks (CDs) and digital audio tapes (DATs) have become popular. They use a mechanism by which analog signals are converted to digital signals and stored on the disk or tapes. When the disks or tapes are played, the player converts the digital signal back into an analog signal. The details of how this is done are outside the scope of this discussion. The significance of the advent of CDs and DATs is that the disk or tape that you buy is every bit as good as the source from which it was made. Losses of sound quality in the mastering and production of the recording are eliminated. In fact, one of the concerns about this technology is that pirated copies may be made that are as good as the original.

(Continued on page 19)

DIGITAL DIGEST

Volume 1 Number 10 October 1994

In This Issue...

THE DISPLAYER
A new way to display your data on a computer screen. This is a new way to display your data on a computer screen. This is a new way to display your data on a computer screen.

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Electronic Hide & Seek

by D-I-Y Radio

Editors Note—This article from *D-I-Y Radio* discusses direction-finding on the high frequency bands, which is very popular in Europe. Many of the techniques discussed apply to fox hunts on the VHF bands. Also, you can learn the techniques of triangulation by using a portable radio to DF (direction find) a local broadcast station on the AM band (550-1500 kHz).

A

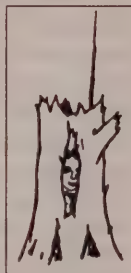
RADIO Amateur's way of playing the old game of "Hide & Seek" is called Amateur Radio

Direction Finding—ARDF for short. In its simplest form, a low-power transmitter and its operator (who must be a licensed radio Amateur) are hidden somewhere. When everyone is ready to start looking for him (or her) (s)he starts sending an easily recognizable radio signal and continues until everyone has found the transmitter. Or given up! The seekers attempt to find the hidden transmitter by using a radio receiver, a map of the area, a magnetic compass, a ruler, a protractor, a pencil, paper and lots of exercise - with fun and fresh air thrown in.

Any group of people can enjoy

ARDF if they can find a licensed radio Amateur to operate the transmitter and give the guidance necessary to make the event successful and, above all, safe. Most of you will have noticed that a medium or long wave portable radio will give better results if it is turned into a certain position. This is because it makes use of an aerial which is directional.

A radio transmitter using a simple vertical antenna will send out a signal (in all horizontal directions) which is a mixture of magnetic and electric fields. The magnetic field spreads out from the antenna rather like the ripples caused by a stone falling into a pond. If a long stick float-



ing near the edge of the pond is pointing to the point where the stone fell, it will hardly move up and down at all. But if the stick is turned through 90 degrees it will rise and fall with the waves.

A ferrite rod is affected by the magnetic field from the transmitter much more when it is in line with the field than when it is at right angles with it. *Figure 1* should make this a bit easier to understand. The portable radio will receive a better signal if its antenna is at right angles to the line pointing towards the station and a very weak signal when the rod is pointing to the station.

You can prove this by using a transistor portable. The radio can

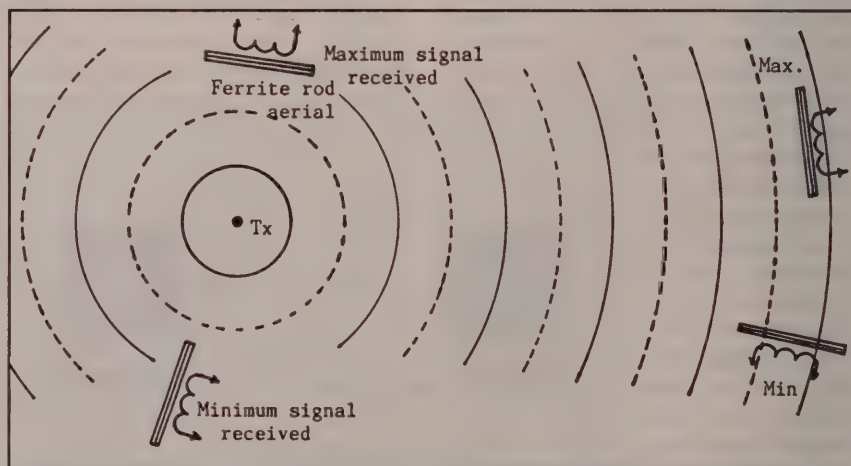


Figure 1. The portable radio will receive a better signal if its aerial is at right angles to the line pointing towards the station and a very weak signal when the rod is pointing to the station.

be turned through quite a wide angle without affecting the loud signal but the position that gives the weakest sound is quite definite. You will also discover that there are two positions in each complete rotation



of the radio which gives a strong signal

and two giving a weak one. It is this effect that is used in ARDF.

Provided that the hidden station can be heard, a line passing through the station can be discovered by turning the receiver to the position which gives the weakest signal. Then, by using a magnetic compass to find the bearing and allowing for magnetic variation, the line can be drawn on to the map of the area.

Magnetic variation is an error in the bearing because the north magnetic pole and the true north pole are not in the same place. It is quite easy to set the compass to allow for this and from then on magnetic north and true north will have the same bearing (for the short distances involved). You now have a line on the map which should pass through the place where the transmitter is hidden.

But which way along that line do you go? There are two ways of getting out of this difficulty.

(1) Move off at about right angles to the first bearing (use the compass again) and go about two or three hundred meters in that direction. Now use the radio to take a second bearing and draw this on the map. The two lines will cross at the approximate point where the transmitter is to be found.



(2) By having a second aerial (a vertical telescopic one), the radio will give a maximum signal in only

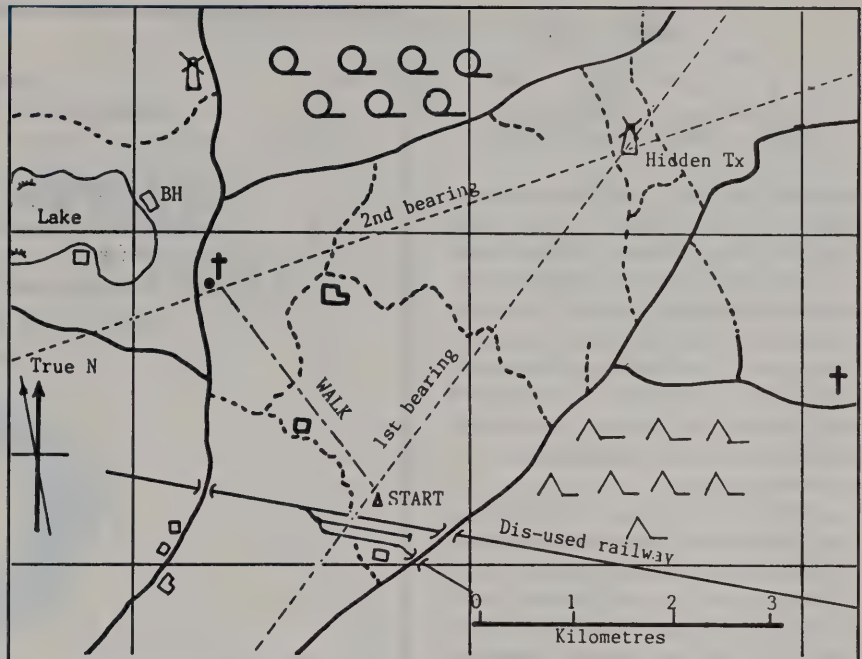


Figure 2. Two bearings are needed to locate the transmitter.

one position when it is turned in a complete circle, so that the direction of the station can be discovered without the need to walk a long way. This is called 'sensing'. Note that this method of obtaining a direction is used only to show the general direction of the station.

Remember that it is the weak signal position of the rod aerial which gives the most accurate bearing so the sense aerial is not used all the time because it would send a signal to the radio when the rod aerial was in the minimum position.

You can now walk towards the transmitter and, after a few hundred meters, a new bearing can be taken. When the transmitter is close, the signal will be strong and it may be possible to use this effect to indicate whether you've passed it, as the signal will begin to grow weaker.

There is one big snag to watch out for—the very strong signal may completely overload the radio and stop it working correctly. The receiver needs to have some means of preventing this and a circuit known as an attenuator is often used. When the basic idea of direction

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finding has been learned there are many ways of making things more difficult. The operator of the transmitter could be told to send for short periods with big gaps in between, or there could be more than one transmitter operating at the same time but on different frequencies and in different places, with seekers being briefed to find each one in a certain order.

In the early stages, the starting point should not be more than four to five kilometers from the transmitter. Even that will involve quite a lot of walking. The transmitter should not be nearer than 15 meters from any public road or 46 meters from inhabited buildings. It must also be situated so that those taking part can get to it without going through any private property. Permission, must of course, always be obtained if the hunt is taking place in private property. It is also necessary to avoid overhead power lines for a number of reasons—one of them being that it may stop the receivers working correctly. □

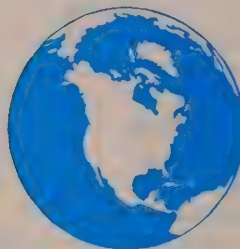
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Congratulations to Richard Moseson, Executive Producer and CQ Communications, the producer of *Ham Radio Horizons*. The video has been named a finalist, out of 14,000 programs, in the New York Festivals International Non-Broadcast Media Competition for 1993. *Ham Radio Horizons* brings the world of ham radio to life on the viewer's screen. Viewers meet hams who are young and old, male and female, able-bodied and disabled, all communicating as equals on a first-name basis. They see hams making contacts with microphones, computers, satellites, Morse code keys and even television cameras.

Ham Radio Horizons is sold by NARA for \$19.95 and can be ordered by calling 1-800-GOT-2-HAM.

Digital Basics

(Continued from page 15)

The ability of CDs or DATs to produce the quality they do is directly the result of the fact that digital signals have two discrete values, one and zero, ON and OFF, which can be exactly copied from media to media.

What is the significance of digital signals and Amateur radio? Digital signals, together with some additional techniques for detecting errors in transmission, make it possible to have very reliable (accurate) transmissions of information via radio, even under extremely adverse conditions. They also make possible the computer automation of the retransmission (relaying) of traffic messages with little or no human intervention.

In my next article, I will discuss some of the character codes used in digital communications along with some of the techniques used to assure accurate transfer of information.

73, Gerald L. Marsh, AA7UF

About The Author

This month, *The Amateur Radio Communicator* is pleased to welcome Jerry Marsh (AA7UF, formerly N7HXV) as a columnist. Jerry has been working in the field of computers since 1967. He worked 11 years for a major computer vendor doing system software support. He is currently employed by the Telecommunication Services Division, Department of Information Services, State of Washington, where he provides consulting and technical support for data communications.

Jerry has taught computer classes at the community college level, and in private industry. He has developed and written conventional and Computer Base Training (CBT) instructional material. His work has been published internationally. Jerry has been a HAM since 1986.

Why An Amateur Radio Operator Is Called A "Ham."

Have you ever wondered why we radio amateurs are called "HAMS"? Well, according to the Northern Ohio Radio Society, it goes like this—the word ham was applied in 1908 and was the call letters of one of the first Amateur wireless stations operated by some members of the Harvard Radio Club. They were Albert S. Hyman, Bob Almy and Peggie Murray. At first, they called their station Hyman-Almy-Murray. Tapping out such a long name in code soon called for a revision and they changed it to HY-AL-MU, using the first two letters of each name.

Early in 1909, some confusion resulted between signals from Amateur wireless HYALMU and a Mexican ship named HYALMO, so they decided to use only the first letter of each name and the call became HAM.

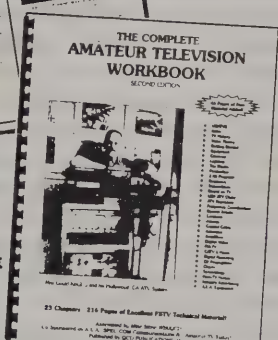
In the early pioneer unregulated days of radio, Amateur operators kept their own frequency and call letters. Then, as now, some Amateurs had better signals than some commercial stations. The resulting interference finally came to the attention of congressional committees in Washington and they gave much time to proposed legislation designed to critically limit Amateur activity.

In 1911, Albert Hyman chose the controversial Wireless Regulation Bill as the topic for his thesis at Harvard. His instructor insisted that a copy be sent to Senator David I. Walsh, a member of one of the committees hearing the bill. The Senator was so impressed, he sent for Hyman to appear before the committee. He was put on the stand and described how the little Amateur station was built and he almost cried when he told the crowded committee room that if the bill went through, they would have to close up the station because they could not afford the license fees and all the other requirements which were set up in the bill.

The debate started and the little station HAM became a symbol of all the little Amateur stations in the country crying out to be saved from menace and greed of the big commercial stations who didn't want them around. Finally, the bill got to the floor of Congress and every speaker talked about the poor little station "HAM".

That's how it all started. You will find the whole story in the Congressional Record. Nationwide publicity associated station HAM with Amateurs. From that day to this and probably to the end of time, in radio, an Amateur is a HAM. □

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Dan & Burke

Improvising

"Boy! It's slick as glass out there!" Burke exclaimed as he peered through the ice-coated windows of the bus in which he and his chum, Dan, were returning from a shopping trip to Center City. "And look at what the ice is doing to those telephone and power lines. I doubt if you could find a 500-foot length of either all in one piece."

"Yeah," Dan said in a low voice as he shut off the all-news broadcast station he had been listening to on his "boom-box" radio; "and a howling blizzard that caught the weather forecasters flat-footed is following up the ice storm. It's blanketing this whole section of the country—"

"Folks!" the bus driver said suddenly, without taking his eyes off the glazed road along which the bus was creeping. "We're going to stop at the next farmhouse. The road passes through a game preserve in the middle of a swamp along here, and there won't be another house for five miles. With

driving conditions getting worse by the minute, we'd never make it. It's growing dark, and we'd be foolish to take a chance on being stranded all night in a ditch in this storm."

As he finished speaking, a dimly lighted window loomed out of the gloom on the right side of the road; and there was a sniffing sound as the driver began lightly touching the air brakes. The road through the swamp was built up on top of a high grade, and the house was some eight or 10 feet below the crown of the road. A blacktopped drive led from the highway across a culvert and into a garage beside the house. The garage doors were open, and the car that evidently belonged in it was lying on its side in the deep ditch at the end of the culvert.

The driver eased the huge bus to a stop on the highway opposite the house. At that instant a bareheaded man came running from the house and

scrambled and clawed his way up the icy incline to the bus.

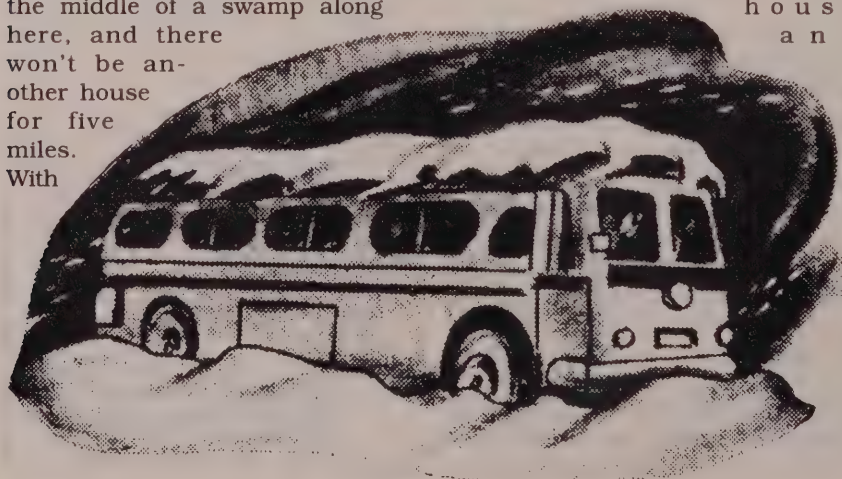
"Am I ever glad to see you!" he exclaimed to the driver as the latter opened the door of the bus. "My boy's taken bad sick, and when I tried to get my car up on the road to take him to the doctor, it slid off into the ditch. The telephone and electricity have been out for hours. If a couple of you will help carry him out—"

"We stopped here because we couldn't go any farther," the driver explained gently. "We wanted to take shelter with you until the storm lets up."

The man's shoulders slumped as he turned towards the house. "Come on in," he said lifelessly. "You're welcome, but I've got to get help for my boy."

As Dan and Burke and the driver helped the three women passengers down the slippery incline, the sleet suddenly changed to snow, and the huge flakes came so thick and fast as to be almost smothering. But inside the living room, dimly lit with an emergency coal-oil lamp, a cheery fire in a large stove made everything warm and snug. On a couch behind the stove a boy about Dan and Burke's age was writhing and moaning in pain. A white-faced woman was sitting beside the couch and trying to keep cold cloths on the boy's head.

The youngest of the three women bus passengers walked over and touched the woman on the shoulder. "Could I look at your son?" she





asked. "I'm a registered nurse." The woman got up from her chair quickly, and the nurse sat down and began to talk to the boy in that determinedly cheerful tone which



is the trademark

of the professional healer. At the same time her fingers were gently probing his abdominal area. Suddenly he jerked convulsively and cried out in pain.

"See if he can swallow these, but don't give him any water or anything else," the nurse said as she took a couple of tablets from a vial in her purse and handed them to the woman; then she walked out into the kitchen where the men had gathered.

"I'm almost certain he has acute appendicitis," she replied to their questioning looks. "The fever, nausea, and tenderness at the spot in his abdomen we call 'McBurney's Point' are classic symptoms. He says he began feeling bad this noon, and usually an infected appendix should be removed no later than twenty-four hours after the pain starts; but the sooner he gets to a hospital where they can run a blood count and make other checks, the better it will be for him. Those pain tablets should give him a little relief, and we'll use cold applications to slow things down. The rest is up to you."

"I'll try to make it alone to the next house and get help," the bus driver said, buttoning his jacket and starting for the door. Dan and Burke followed the others out on the front porch to see him take off. A howling wind was driving the blinding snow almost parallel to the ground, and the flakes were so thick that the outline of the bus, only seventy-five feet away, could barely be made out.

The driver turned on the lights, started the motor, and began easing power to the diesel. At first the bus refused to budge; then suddenly the rear wheels started to spin and the rear of the bus slewed around into the driveway. Slowly, in spite of everything the driver could do, the huge vehicle slid backward down the incline until the rear of the bus came against a rock garden built in front of the house. There it stopped, with the front wheels on the road and the headlights boring up into the whirling snowflakes.

"I'm sorry," the driver said to the boy's father. "I didn't think it would work, but I had to try. How about a couple of us trying it on foot?"

As if in answer, a voice from the "boom-box" radio at Dan's side said: "Attention everyone in the storm area. Do not go outside. Stay indoors. This is the worst storm in years. Winds are gusting up to sixty miles an hour, piling the snow into enormous drifts. Even walking is impossible. Do not, I repeat, do not leave a place of safety for any reason."

"Sir, do you have a radio in your car?" Burke suddenly asked the boy's father.

"Yes, but why?"

"My friend here and I are radio hams. If you'll let us, I believe we can make a transmitter out of your radio and summon help. We'd like to try."

"Go ahead. Doing anything is better than just sitting here. I suppose you want the radio out of the car."

"Yes, and the battery, too. While you fellows help Dan get them out, I'll try to move the tuning range of Dan's transistor receiver into the 75-meter ham band."

"How you gonna do that?" Dan asked as he handed over his receiver.

"By taking turns off both the oscillator coil and the tuned loopstick antenna," Burke answered. "If the transistor used as an oscillator will just keep going up around four megacycles, this should work."

The man got some tools from his garage, and the three of them started to work on the car. Burke went back into the house and sat down at the table beside the coal-oil lamp. With a pair of tweezers borrowed from one of the women, he fished out the end of the oscillator coil winding he wanted and began carefully stripping off turns. Every few turns he stopped and reconnected the end of the shortened winding, then checked to see how far a broadcast station originally received at 1600 kilocycles had moved down the dial. As this station grew weaker, he took turns off the loop winding to peak it back up. Finally the station was coming in at 540 khz. on the dial, and now

Dan & Burke



use one of the transistors as a self-excited oscillator and the other as a modulator. Am I glad now I just finished reading an article on early amplitude modulated transmitters! If I can only remember the circuits—

when he tuned down to the other end of the dial he could hear some weak amateur stations on the 'Society To Preserve AM' net frequency. By further trimming of the antenna coil and peaking up the trimmer capacitors, he raised the volume of the ham signals until they could just be understood.

At this point the men, plastered with snow and chilled to the bone, came in lugging the car battery and the radio.

"Good old Hank is monitoring the AM Preservation net frequency as he always does when there's a chance of a communications emergency," Burke reported to Dan as the latter held his blood-red hands towards the warmth of the stove. "If we can put out any signal at all, he'll hear it."

Hank was a gung-ho AMer, in the boys' home town who was noted both for his technical knowledge and for his operating excellence. Any time that there was an emergency on the ham bands, day or night, Hank could be depended on to be in there with his keen ears and powerful signal.

"We're in luck!" Burke exclaimed as he removed the top cover from the receiver. "This thing uses a couple of silicon transistors in the output stage. That means we can

"You can and you will," Dan said with conviction. "You can't remember a three-item grocery list for your mother, but I don't think you ever forgot a single line of a circuit diagram in your whole life."

"Let's see, now," Burke mused as he sketched a rough diagram on the back of an envelope. "One section of this tuning capacitor riveted to the chassis can tune the tank circuit, which means that one end of the tank coil must be grounded. That's okay if we use this modified Hartley circuit. The emitter goes to a tap near the grounded end of the tank coil. The other end of the coil goes through a small capacitor to the base, and a five or ten-thousand-ohm resistor goes from base to ground. The collector is at ground potential as far as RF is concerned, and we'll tie it right to the collector of this other transistor serving as a modulator. That will let us use 'Heising modulation.'"

"What are you going to use for a mike? You can't use the speaker without a transformer to match its low impedance into a base, and you're already using the output transformer."

"I'm going to use the carbon mike in the telephone handset."

"You still need a mike trans-

former. "Not when I use the mike for the emitter resistor of my first audio stage so as to make a grounded-base amplifier of it," Burke corrected.

A wood chisel heated in the stove served as a soldering iron as the two boys made the circuit changes outlined. A thin copper tubing gas line found in the garage was formed into a tank coil of some twenty well-spaced turns about two and a half inches in diameter. This coil was simply allowed to lie on the wooden table top, and leads from the tuning capacitor and the oscillator cathode were run to it. Transistors not needed were removed from the receiver to save power. A dial lamp soldered across a single turn of wire served as an oscillation indicator, and this lighted brilliantly when held near the tank coil of the hay-wire transmitter; furthermore, it flashed encouragingly when the mike was tapped.

Ice was broken off a 120-foot length of the downed telephone line in front of the house, and one end of this was connected directly to a turn of the tank coil about one-third of the way down from the "hot" end. The other end was run out the window and attached with a plastic napkin ring for an insulator to a telephone pole that was still standing. The transmitter was tuned to the frequency on which Hank and the other net members were talking by listening on the "boom-box" receiver.

When all was ready, Burke turned on the switch and gave Hank's call several times, signed his own, and said. "Emergency traffic! When the makeshift transmitter was cut off, Hank's alert voice came booming from the receiver: "Station calling with emergency traffic, go ahead. You're not very strong, and you have about as much frequency modulation as you do amplitude modulation, but I think I can read you. Other stations copy along."

Quickly Burke outlined their situation. Hank gave him a 'Roger' and told him to stand by. After a few minutes that seemed like hours

Dan & Burke

to the group whose tense faces were lighted by the coal-oil lamp, Hank was back: "The state police are going to send out their 'copter to pick up the boy. The storm is dying down, and they think they can make it if they can just find you. Do you have any lights with which you can signal?"

"The headlamps of the bus!" the driver exclaimed. "They're pointed up in the air!"

This information was relayed, and it was arranged that a portion of the highway just south of the bus should be cleared for a landing spot for the helicopter. Everyone, even the women, went out into the slackening snow storm to help scrape and shovel the deep-piled snow from the road. They were barely finished when the throbbing sound of the whirlybird came from the sky, and in a matter of moments it settled gently down on the road. The sick boy was carried out and transferred to the aircraft, and it lifted up into the cone of light from the bus headlamps and flew swiftly toward a waiting hospital.

Everyone went back into the house and sat tensely around the butchered-up "boom-box." Daylight was just breaking over the snow-smothered landscape when Hank's sleepy drawl came from the speaker:

"All is well. The boy has just come down from surgery and is fine. The appendix had not burst, and there were no complications. A snowplow, followed by a wrecker, are on the way to you. Give me an okay, and then please take that alleged transmitter off the air. I don't think I've had to copy a signal that lousy since I first got my license 30 years ago!"



"Roger and out!" Burke said with a grin as he patted the improvised transmitter affectionately; "I'd say, pretty is as pretty does!"

Dan and Burke is based on a storyline created in 1954 by John Frye, W9EGV. The boys are the sons of John's original characters, Carl and Jerry.

John Frye is no longer with us. But while he was alive, John was an avid Amateur Radio operator who wrote about young people—for young people.

It's doubtful that anyone could make John's stories more interesting or improve on his words. We'll settle for giving them a 1990s twist.

For more information about amateur radio, please contact NARA.

ARE YOU EXPECTING YOUR LICENSE SOON?

The following is a list of the FCC's most recently issued call signs as of January 1.

District	Group A Extra	Group B Advanced	Group C Tech/Gen	Group D Novice
0	AA0PX	KG0XT	N0ZVT	KB0NLT
1	AA1IF	KD1TF	N1RBP	KB1BEY
2	AA2QX	KF2TH	N2XPB	KB2QVK
3	AA3GT	KE3LP	N3RFS	KB3BAB
4	AD4OO	KR4KT	++	KE4IUQ
5	AB5SB	KJ5UA	++	KC5EUX
6	AB6ZM	KN6XD	++	KE6EJD
7	AB7AT	KI7UQ	++	KC7AEN
8	AA8NR	KG8GG	++	KB8RAN
9	AA9JX	KF9TH	9VWX	KB9IWO
Hawaii	++	KAH6NE	WH6QU	WH6CRB
Alaska	++	KAL7PM	WL7PP	WL7CHL
Virgin Is.	WP2D	KP2CC	NP2GY	WP2AHU
Pue. Rico	++	KP4WC	++	WP4MMN

++All call signs in this group have been issued in this area.

Joe Strolin's Fluid-Tuned Radio

by Arthur Human, W2HQQ

IT WAS LISTED AS THE "Invention of the Year." Fame and fortune soon followed (well followed isn't really the right term, *caught up* is a better description as Joe was already rich and famous).

Finally, here is the story of the miraculous "Fluid-Tuned Radio" that has not been copied in the Orient,

or any other place, for that matter. Joe has become the exclusive manufacturer of these priceless AM radios (priceless because no one has offered to buy one regardless of price). Never-the-less, Joe has made a number of these and some of his friends (and former friends) have exhibited them as points of honor next to the "Potato Powered Computers" and "Cranberry-Powered LED night lights."

Believing that the best new inventions are just rearrangements of the oldest inventions, Joe was

lab-standard variable capacitor with two capacitance scales. The construction was standard with one set of fixed plates and one set of plates that meshed and unmeshed with the fixed one as it rotated. It was built with a bakelite top and bottom plate and an "Izingglass" cylinder so that the mechanism was visible.

The dual scale of 50 to 500 mmFd. and 200 to 2000 mmFd. was the interesting part. How could one variable capacitor with no adjustments have two different ranges? The answer was that if you filled the structure with a certain brand of mineral oil, whose dielectric constant was 4.0, the capacitance was multiplied by 4.0. Most of us still remember oil-filled filter capacitors and oil-filled paper capacitors but, the oil-filled variable capacitor has been long forgotten. Here was the ideal product for re-invention.

Rotating variable capacitors are too common. Dial strings, knobs and dials are now a thing of the past. With his new invention "Fluid Tuning", Joe was trying to do away with these and the even more complex modern day digital tuning methods with all the IC's LCD displays, crystal oscillators, phase-locked loops and frequency synthesis. Joe's new invention does not even have any moving parts. *Only the fluid moves.* Since the patent application (with 247 claims) has already been filed and is in the process, (first rejection was on the



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Joe has become the
exclusive manufacturer
of these priceless AM
radios (...because no one
has offered to buy one...)

forever pouring through ancient catalogs and magazines. He came across an early advertisement from the 1920s by General Radio, that famous instrument and laboratory-standard electronics manufacturer of the early days. The ad was for a

other 689 claims) the basic structure of this "Invention Of The Year" can now be described.

For demonstration purposes and entry into this year's "Rube Goldberg Contest," a large model has been built. The structure consists of the "housing" and the "capacitor plates." The "housing" is built of 3/16-flat polystyrene plastic plates, like a narrow fish tank glued together with a solvent type glue. Outside dimensions are about 12" high by 12" wide by 1/2" thick. The top may be either open or sealed, depending on the method of fluid-height adjustment. The capacitor plates are just thin aluminum sheet stock, just thick enough to be reasonably rigid. The common-ground plate for the two capacitor sections is 11" by 11". The antenna plate and the oscillator plate are each 5" by 10". They are bolted to the "ground" plate with nylon nuts and bolts for insulation and adjustment purposes. A wire is brought out from the three plates and attaches to the connections where a variable capacitor would normally be in a cheap portable radio.

Without any fluid in the tank, the spacings of the antenna and oscillator plates are adjusted to properly receive a station at the high end of the AM radio spectrum (WQXR is 1560). With the tank filled with the proper dielectric fluid, the plates are adjusted for the low end of the band, (WICC is 600, WMCA is 560). Some oils will not allow full band coverage, most 100% alcohols will. A dielectric constant of over ten is needed for full coverage. Now the secret is out, you tune the radio by adjusting the fluid level. That is what is meant by "Fluid Tuning."

The higher the fluid level in the tank, the lower the frequency to which it tunes. The real genius of the invention and the patent claims (which can't be discussed) are all methods of adjusting the fluid height. Obviously you can pour fluid in and use a hypodermic syringe, roasting baster or other suction method, to suck the fluid out. These prove the point and demonstrate

the function but, are not indicative of the true genius of Joe Strolin's mind. We can only discuss the demonstrated "intravenous bottle" method at this time but remember all Joe's years of employment as a plumber and you may be able to realize all the other possibilities.

The "IV-bottle" method was used for the "Rube Goldberg" contest entry and all of his gift models so far. The tank is sealed to prevent leakage and an IV-bottle is used as a reservoir for the fluid. Two flexible plastic tubings are used, one inside the other. One is held at the bottom of the tank and the bottom of the bottle. This one is for fluid transfer. The other goes from the top of the tank to the top of the bottle for air flow so there isn't any vacuum or pressure buildup to prevent fluid flow while still allowing complete sealing of both to prevent leakage.

It is called the "IV-bottle" arrangement because an IV-type stand arrangement and clamps are used to set the bottle level for proper fluid height in the tank to tune to the desired station. In the "automatic tuning arrangement," a special "staircase" was built. The heights of each step represent a different station and are so labeled. WQXR is the lowest step while WMCA is the highest. Place the bottle on the step, for the station and the fluid will equalize to the capacitance for the station. As stated earlier, the more exotic methods cannot be discussed at this time.

In proper form for contest entry, the case of the radio was discarded, a 12" PM loudspeaker was bolted to a common wood base for the arrangement, D-cells were put in series for the proper operating voltage, also for effect.

The crowning touch was the giant, old-fashioned loop antenna to replace the miniature ferrite loop from the cheap broadcast radio, again for effect.

Only two problems have been encountered so far. At a school demonstration, the EPA forced Joe to put up a giant warning sign

because of the fluid used, "DANGER CASTER OIL." The other problem has been with the model given to Gene, WILRR. That was one of the alcohol-filled models and Gene says he can only get WQXR. Gene says it must have evaporated but we have heard too many mentions of "two-fingers worth." Anyway it seems a better sealing method is needed.

The world is anxiously awaiting the improved models that Joe says can't be shown until after the paper comes from the patent office. He believes they should be due next April First and should be signed by Mohamad Ulysis Fipps.

73 de Arthur, W2HQG

□

Commercial License Information

If you need information on the holders of a ham radio call, there are some excellent services available. The names Buckmaster (a NARA advertiser) and the SAM database come to mind.

But what about looking up those commercial license holders? What frequency is the local plumber using or what is the call of the XYZ Management Corporation on the business trunking system?

NARA had a very pleasant experience working with George Bellows, Jr., Box 1239, Charleston, South Carolina, 29402. Even with the minimum information supplied, George was able to find the names, calls and frequencies that we needed.

There may be CD-ROM data bases available for commercial licensees, but if you only need occasional assistance, contact George Bellows at the above address.

An On-Line Conversation Between Steve and Eric

Eric: For 20 years now I've considered a ham license off and on. At the moment, I'm on again. But every time I start to get interested, I begin reading the magazines. I also begin monitoring SSB frequencies on a receiver and my response is always the same <yawn> boring!

I read in the mags.."and who can ever forget the warm glow of tubes during the winter of 1933/34?!" I read the ever-growing list of silent keys and the bemoaning of the lack of beginners. I monitor the conversations: "yeah and the xyl's rheumatism isn't too good either..." or, "I'm running a WWII vintage Drollins amp here, serial number 1X8977676 and have a homebrew.. blah, blah, blah.." or, "...was just talking to old Harold before he passed away....what's that been now....30, 40 years??"

Please understand...I'm not ridiculing anyone. I really do appreciate comfortable old friends ragchewing or reminiscing. My point is simply...this doesn't look very interesting or exciting to potential newcomers. The reality is, nobody born since 1960 can understand the fascination with radio as those over 50 understand it. Having been raised watching men walk on the moon and using a personal computer, cellular phone, fax machines, etc. it's different. Now hopefully, I'll follow through this time and get my license...even learn code...upgrade...the whole deal! But I'm the exception, not the rule. I believe the key

to involving newcomers is the lure of DX....taking advantage of the new "global village" mindset. Radio technology is ancient! Contesting will never appeal to more than a few. SSTV compares poorly with one-pound camcorders, digital imaging, GIFs, etc. Packet seems antiquated compared to cellular faxing, computer networking, modem operation, etc.

In short, I don't see anything on the horizon of radio that makes it technologically inviting to young users. It's a technology which dates to the days of horse and buggy. Yet over and over I see it promoted on the basis of "science and technology." I think it needs to be promoted on the basis of global networking, linking and communications. Millions of people today would be interested in chatting with someone in Europe, Asia or Africa to learn more about them. No one is in awe of RTTY today! Again, I'm not trying to be critical. I'm trying to identify with you and become a part of your community. I'm willing to learn all the theory and code that's required, but not for the love of technology or experimenting. It's just a nuisance hurdle which must be jumped in order to try and enjoy the world of global communication!

I'm not interested in homebrewing a one-watt QRP in a tuna can. I'm interested in getting to know people via radio. I think that's true for most potential hams as well. People don't "buy" technology (usually). They buy solutions/answers. Many people

today have the problem of wanting to talk to others globally. Radio offers a solution. Hardly anybody seems in awe or fascinated by vacuum tubes and capacitors, other than a few old timers and a handful of techies.

73,
Steve

Steve:

I hope you do persevere and get on the air. If you do, you will find nothing standing in the way of your enjoyment of the single aspect of the hobby you seem interested in. Just as all the folks you mentioned are not finding many obstacles to their enjoyment of their favorite aspect.

The fact that this hobby IS many faceted is that is one of the things that keeps it going. All of the technology you mention as being far superior to that found on the ham bands was created by (a relatively small number of) people who were all interested in the nitty-gritty internal workings of things. They all had to learn their craft from first principles upwards.

A very large number of the really "lights on" ones that I have met in my professional life learned a big fraction of their first principles "hands on" style as Amateur licensees. It is as a place to nurture the interest of this type person that the hobby is promoted on the basis of "science and technology".

The hobby can be and is promoted based on many other

considerations too numerous to mention here. It is a shame that you have wasted 20 years of enjoyment of a great hobby. But it will always be true that when you are observing someone else do what HE is interested in, you may find it boring. When you are doing something that YOU are interested in, you will never be bored. Most of the

FAR Scholarships

The Foundation For Amateur Radio, Inc., a non-profit organization with headquarters in Washington, D.C., plans to administer forty-nine (49) scholarships for the academic year 1994-1995 to assist licensed Radio Amateurs. The Foundation, composed of fifty local area Amateur Radio Clubs, fully funds five of these scholarships with the income from grants and its annual Hamfest. The remaining forty-four (44) are administered by the Foundation without cost to the various donors. Licensed Radio Amateurs may compete for these awards if they plan to pursue a full-time course of studies beyond high school and are enrolled in or have been accepted for enrollment at an accredited university, college or technical school. The awards range from \$500 to \$2,000 with preference given in some cases to residents of specified geographical areas or the pursuit of certain study programs. Clubs, especially those in Delaware, Florida, Maine, Maryland, New Jersey, Pennsylvania, Virginia and Wisconsin, are encouraged to announce these opportunities at their meetings, on their nets, during training classes, and in their club newsletters. Additional information and an application form can be requested by letter or QSL card, postmarked prior to April 30, 1994, from: FAR Scholarships 6903 Rhode Island Avenue College Park, MD 20740

time I spend enjoying the hobby does not involve transmitting at all (except to test the performance of the project)!

So observing my ham activity from your living room via a receiver must have been excruciatingly boring for you. If you do get your license, and again I sincerely hope you do, you will discover that even to do what you are interested in is going to involve some learning on your part of "techie stuff" to get your station on the air and performing adequately for your purpose. You will find that the techies in your area will be eager to help you out both with advice, and manual labor.

73,
Eric

#: 228649 S0/HamNet Roundtable
01-Jan-94 19:08:47
Sb: Upstart troublemaking
Fm: Joe Chianese KE6CSM 73614,436
To: all

Seems to me that amateur radio is suffering from multiple personality disorder. Okay, I just got here and am new to amateur radio, new to these discussions. But permit an early impression....

The old hams are having a fit that new hams might be able to select a call above their lowly station.

This ain't the military guys; nobody is going to confuse you with somebody new.

The ARRL is wondering why the FCC would still propose a rule on instant licensing even after they suggested their alternative. I joined the League for the magazine. I didn't necessarily grant a proxy for them to represent me in Washington. I did expect the information, so I could voice my own concerns (which are strikingly, but >accidentally< similar to theirs).

Local organizations looking for new blood are complaining about disinterested Novices while at the same time decrying the lowered admission standards that attract only unsophisticated pacrats who don't know the code, and contribute nothing (especially deference) to the OFs.

I presume some of us are as interested in radios as we are in Radio. Those people get their technical articles and experiment with the equipment and try to stay on budget, and probably stay out of all the political and organizational seismology that occupies the others.

My fear is that the elitism of a group that is fairly celestial to begin with, may cause hypoxia. Are we losing perspective? I thought this was a hobby and a service instead of a lobby and a club.

Sorry guys..., just pulling the chains you left dangling.

Interested In Packet?

One of the best publications to pass our way is the Northwest Amateur Packet Radio Association Notebook. While the purpose is stated as a compendium of NAPRA club programs and a directory of club activities, it should be of great interest to beginners.

The Notebook is comprehensive in that it discusses the basics of packet radio, and is right up-to-date with sections on servers, TCP-IP, The NET, BBSs, and so on. The book is shipped to NAPRA members annually and no price is shown on the cover. However, I'll bet you could buy a copy, and joining this progressive and expanding group should not cost much more.

You can get more information by writing Northwest Amateur Packet Radio Association (NAPRA) at P.O. Box 70405, Bellevue, WA 98007.

LETTERS

Dear Don:

The topic of recruiting and KEEPING the youth is, I feel, the most pressing issue with ham radio today. It depresses me as I go year after year to hamfests and see an ever aging group. To tell you the truth, if I was 16 years old today, and saw the state of things in ham radio, I don't know if I'd really be interested. It would be a lot more fun to just play with a computer or remote-controlled airplane, where there would be lots of clubs with people my age doing it.

Great to see your organization. I hope things go well with it. I hope you can keep it from being too top-heavy like other well-intended organizations have become.

73 Don, and good luck!

Ron Jones, K7RJ

(Utah ARC W7SP)

Recruiting AND keeping is important, Ron. It appears a lot of young people get their license and then don't do anything with it.

IN THE GOOD OLE DAYS

Dear Don:

When I was ready, not like today hoping for a miracle, I had to go to Schenectady, NY, to face the FCC R.I. (*Radio Inspector-Ed.*) I went to the high school office to tell them what I was going to do the next day and the Vice Principal told me I couldn't have the day off as it was an illegal absence...Guess what? All the exams were scheduled for school days, only four per year, so I went anyway. I broke the rules! But I met with success... By the way, I later learned the R.I. was none other than Hugh Turnbull, W3ABC.

You know, I can't recall how I was introduced to the club members. I had no "Elmer" and I found Amateur Radio essentially by myself. Our Erie club intimidates newcomers by forcing them to stand up and introduce themselves. By the way, I had a paper route and I built by own receiver and transmitter with the profit from my labor. I admit that later on my Dad bought

me a Hallicrafters S-40. Later, I went on to become an engineer, but I don't blame amateur radio for that. And by the way, I still am addicted to International Morse and use CW most of the time.

Thanks for listening, and 73,
Frank, W13U

TWO VIEWS ON MORSE

Dear Don:

Thank you for a complimentary copy of "*The Communicator*" and I admire the format which includes young people as a new wave.

The Morse Code is and will always be an art in Amateur Radio, and should continue to be required in the future. I was taught by some ARRL members in 1970 on an old military paper tape machine. For six weeks at one night per week, I would return home, as a lad should, and copy CW off my homemade Heathkit.

When I received my first call, I got right back to the ham shack, listened for a CQ and made my first transmission. Intense was an understatement! The other amateur might as well have been in the Middle East because it seemed we were a world apart. Turns out he lived twenty minutes north of me!

Getting back to my point now. Since I have gotten active again in this great hobby, there is a codeless technician class. Maybe the codeless techs would order me a pizza and I could send the five words per minute text while my mouth is full. We better all stick together.

Mike Standerfer, KB7YNY

Dear Don:

I am amazed that some aspiring attorney doesn't grab the opportunity to eliminate code requirements from the amateur testing process. Both the younger (and older) generations can make significant contributions to this hobby. The younger because of their interest in computers and the older because of their experience—neither are interested in learning an antiquated

regulatory requirement (CW) utilized by less than one percent of licensed amateurs.

Guy A. Matzinger, KB7PNQ

MAKE THAT THREE VIEWS

Dear Don:

I was pleased to receive the free issue of "*Communicator*" and to find out your organization's main goals are to represent Novice and Technician class ham operators.

I am currently struggling with the code in hopes of upgrading to General class. The few short months I've been on the air, I have formed the opinion that most hams feel the code is an unnecessary obstacle for many to pass to earn HF privileges. If many decide not to bother upgrading, then little by little fewer operators will be on HF and eventually HF bands will be reallocated to their interests. I feel it would be in the best interest of ham radio to remove the outdated barrier that will keep many from using these bands.

The only reason I'm even learning the code is so I could have HF voice privileges. I believe the future of ham radio as we know it is in

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OPCOELECTRONICS	Cvr III
QCD	19
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Rosewood	21
Rusprint	18

doubt unless the FCC continues to modernize and update its standards for ham radio operation. About 15 years ago, I studied for my Novice license, but the code kept me from getting started in radio. Now the code threatens to keep me from upgrading.

73's,

Tom Geisel, NOYMY

GORDON GOOFED?

Dear Don:

My wife, KE4FJW, just received your November/December issue in the mail and I read the issue with interest. The article that caught my attention was the one by Gordon West. His logic for the type of connector to use is not very sound. He worries about the loss of this connector at UHF frequencies while advising that a duplexer and antenna combination are efficient. The loss from the connector is negligible compared to the loss of the duplexer and antenna combination. He states that one dual band antenna and a duplexer are just as efficient as two separate antennas for each band. This is impossible because if the antennas are installed correctly and tuned to their respective band, there will be no loss because of a duplexer.

I work with radios every day as a hobby and as a profession and I think if you are going to publish

information to help new hams out, you should be sure that what you publish is accurate. They will enjoy the hobby much better and won't be upset when their equipment does not perform the way they thought it would.

73 de N9HXX.

Steven J. Holland

AW SHUCKS, BLUSH

Dear Don:

I had to write to congratulate you on putting together an excellent book for those of us future "Hams". I previously have looked through the ARRL material and, although I am fairly technically minded, I found it VERY DRY. It discouraged me from going any farther and I put the license idea aside. Your easy manner and way of "talking to" the reader is very relaxing, informative and easy to follow. The book is completely different—in a positive manner—from my expectations.

I only made it through two years of Electrical Engineering at Rutgers University because the course was admittedly "too theoretical". I grew up experimenting and trying and testing and seeing and proving; so any pure theory alone is lost on me unless I can try it out and become a believer. One picture on an oscilloscope is worth a thousand proven equations to me. Your instructions are providing that feeling to me.

The computer software is great! My score continues to improve as I retest and keep reading the text to fill in my weak spots. If college instruction was more like this, I might have graduated. It is strange...a year ago, I would not have thought I would be doing this.

I feel ready to schedule for the test, and am going to try for the code, also. Thanks to NARA for including the Morse lesson on the disk. Even though I responded to the "No-Code" way to get a ham license, I now desire to master the code also, at least to get a Tech-Plus license. This is fun and interesting and I am just starting! I will be joining NARA (of course) as soon as I get my "ticket"

73,

Bill Strassner

You don't have to hold a "ticket" to join NARA, Bill. A lot of our members are "wannabes." Just think of all those great articles you will miss if you don't receive the "Communicator" magazine.



TO: Don Stoner, W6TNS
National Amateur Radio Assoc.

Join The Dialog!

Write to us at NARA

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NEW HAMS-SWL'S-OLD TIMERS



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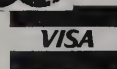
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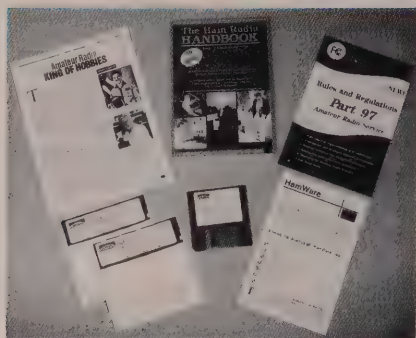
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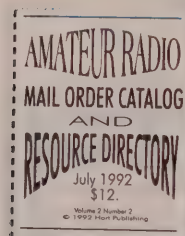
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- *How To Earn Your No-Code Ham License*, the 200+ page study guide that guarantees you'll pass the test or your money back!
- HamWare software for testing your knowledge
- FCC Amateur Rules and Regulations book
- Bonus Morse code training program (IBM) 0 to 25wpm
- Complete list of Contact Volunteer Examiners
- *King of Hobbies* publication, a special introduction to Amateur radio

The **NARA Codeless Technician Package (IBM)** is just **\$29.95 (3.00 S&H) #P110**.

Having Trouble with Code?

The **Morse Academy**, IBM software, actually teaches all 43 required code characters and then steps you up through the Amateur Extra level using sophisticated computer aided instruction techniques. Adjustable tone, standard or Farnsworth spacing. Sends text or randomly generated characters—plus an on-disk manual! (5¼" disk) **WAS \$14.95, NOW ONLY \$9.95 (\$1.50 S&H) #S410**.



Amateur Radio Mail Order Catalog And Resource Directory

Now bigger than ever!
With 30 more pages, 30 new categories, and

over 150 more listings it has never been a more valuable resource for your ham shack! You'll find everything from A to Z, including parts and equipment, kits and keyers, QSL cards, even personalized hats, mugs, and license plates. There's an extensive listing of radio clubs worldwide, international radio magazines, and over 100 free catalogs available just waiting to be requested!

Use it again and again as your reference products, clubs, catalogs, shareware and much, much more! The **Amateur Radio Mail Order Catalog and Resource Directory** with 260 pages is only **\$14.95 (\$3.00 S&H) #B660**.

HamWare™ Testing Software

The **HamWare**, IBM compatible (5¼" and 3½" disks) testing software, provides all the practice you need to get your first license or to upgrade. Drawings and diagrams appear automatically on screen along with the appropriate questions, and there's even a practice mode, complete with hints, answers and help screens. There's even a handy on-screen scientific calculator. Your choices are mouse or keyboard selectable. As a bonus, each disk includes a copy of **Morse** software for learning Morse code.

- HamWare Nov/Tech Classes w/Morse #S210
- HamWare General Class w/Morse #S211
- HamWare Advanced Class w/Morse #S212
- HamWare Extra Class w/Morse #S213

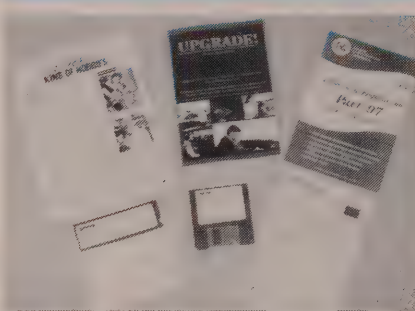
HamWare is available at Amateur Radio dealers or directly from NARA. License classes are sold individually. Each class is only **\$14.95 (\$2.00 S&H)**.

NARA Amateur Training Package

Start with your Novice or no-code Technician license and go "all the way" to Extra class with this excellent IBM compatible training package that includes:

- HamWare Novice/Technician Classes w/Morse
- HamWare General Class w/Morse
- HamWare Advanced Class w/Morse
- HamWare Extra Class w/Morse
- 60-page *FCC Rules and Regulations, Part 97*
- *Amateur Radio—King of Hobbies*
- An extensive list of Contact Volunteer Examiners.

Save by ordering the **NARA Amateur Training Package**. This entire package (5¼" and 3½" disks) is only **\$32.95 (\$3.00 S&H) #S220**.



Upgrade to General Class with the NARA UPGRADE Package

NARA has put together all the essential tools you'll need to upgrade to General class. This value-packed offer includes:

- *UPGRADE! to General Class* by W6TNS
- HamWare General Class IBM (5¼" and 3½" disk) testing software w/Morse
- 60-page *FCC Rules and Regulations, Part 97*
- *Amateur Radio—King of Hobbies*
- An extensive list of Contact Volunteer Examiners

The **NARA Upgrade Package** is available at Amateur Radio equipment dealers or directly from NARA for only **\$29.95 (\$3.00 S&H) #P240**.

A FREE issue of *The Amateur Radio Communicator* will be mailed to you at a later date when you order any NARA product!

NEW! Introduction to QRP!

NARA does it again with its **How To Get Started in QRP** book. QRP (meaning low-power operation using five watts or less) offers a unique and exciting challenge for



today's ham. Written by Dave Ingram, K4TWJ, "**QRP**" covers an overview of QRP, accessories, operating tips, power sources, homebrew, clubs, awards and more. With today's technology and equipment, working the world with QRP could be the ultimate challenge! **How To Get Started in QRP** is available at all major ham radio stores or directly from NARA for only **\$9.95 (\$2.00 S&H) #B690**.

MacHam™ Testing Software

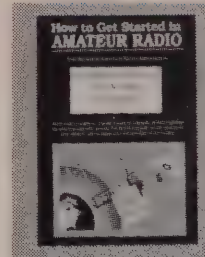
MacHam is one of the most useful series of ham radio programs written for the "Mac." All required circuit diagrams are displayed with the question on the screen. If the test is printed, the diagrams are included.

The tests can be taken on screen, by element or by chapter, with options of immediate or end-test scoring. Printouts create exact VE style exams, with question pool numbers, correct and blank answer sheets.

- MacHam Nov/Tech #S310 **\$39.95 (\$2.00 S&H)**
- MacHam General #S311 **\$29.95 (\$2.00 S&H)**
- MacHam Advanced #S312 **\$29.95 (\$2.00 S&H)**
- MacHam Extra #S313 **\$29.95 (\$2.00 S&H)**

NEW! How To Get Started In Amateur Radio

Learn things about your handheld radio that the instruction manual forgot



to mention. Don Stoner's new information booklet, **Understanding Your Handheld Radio (#B701)**, completes your knowledge of controls, switches, antennas, specifications and accessories.

Bill Pasremak, WA6ITF, has written the second book in the "getting started" series called **A Beginner's Guide to FM and Repeaters (#B702)**. He fills in your knowledge on operating on repeaters, your first QSO, and so on. **How To Get Started booklets** are priced at **\$3.95** from all major ham dealers or direct from NARA (**\$1.00 S&H**).

Order Today!

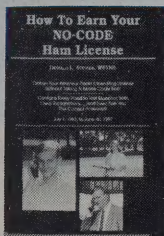
Learn the Code with these Outstanding Cassette Tapes!

These cassette tapes will give you the practice you need to pass your code exams. Each set contains two cassette tapes. Each set sold separately.

- Novice/Technician Class 0 to 5wpm #T710.
- General Class 5 to 14wpm #T720.
- Extra Class 12 to 24wpm #T730.

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AVAILABLE FROM NARA



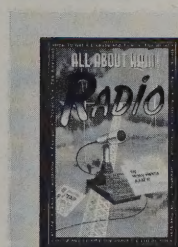
How To Earn Your No-Code Ham License

By Don Stoner, W6TNS, is the leading book for anyone wishing to earn the new code-free Tech license. Includes every question plus the multiple-choice answers.

How To Earn Your No-Code Ham License is the only test manual that includes simple and easy-to-understand theory along with many photos and illustrations. There are ten chapters covering each subelement. Sample tests are given at the end of every chapter with a list of correct answers at the back of the book. Guaranteed to provide all the information needed to get your ham radio license or your money will be refunded. **How To Earn Your No-Code Ham License** is only **\$9.95 (\$2.00 S&H) #B610**.

FCC Rules and Regulations

The **FCC, Rules and Regulations Part 97**, covers the guidelines and rules of the Amateur Radio service. This 60+ page book is an excellent reference for every class of license; a resource book no ham shack should be without! **Rules and Regulations, Part 97, Amateur Radio Service** is only **\$4.95 (\$1.00 S&H) #B640**.



All About Ham Radio

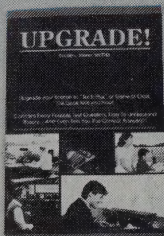
This is the book that Don Stoner wishes he had written. Harry Helms, AA6FW, wrote this book in a manner that can be understood by everyone from young to old alike.

Although not keyed directly to the question pools, it provides all the information you need to know to become a Technician Class Amateur.

Over 290 pages of jam-packed information including Hams And Their Radios, Customs, Habits And Other Good Stuff, Single Sideband, Ham Radio Meets the Personal Computer, Folklore, and much more.

For a book that covers so many different aspects of the Amateur radio hobby **All About Ham Radio** is a steal at only **\$19.95 (\$3.00 S&H) #B680**.

Order Today!



UPGRADE! To General Class!

UPGRADE to General Class by Donald L. Stoner, W6TNS, shows "no-code" hams how easy it is to upgrade to the Tech-Plus or General Class license!

UPGRADE! has nine chapters covering each subelement of the General Class exam. All multiple-choice questions and answers for the General Class exam are included. Tips and special hints for learning the code and increasing your speed are also included!

UPGRADE! is available from Amateur Radio stores, or direct from NARA for **\$9.95 (\$2.00 S&H) #B620**.

Play It Up! With NARA's New Videotapes

Explore Amateur Radio through exciting videotapes! Directed by some of the best-known names in ham radio, these videotapes are the perfect addition to every ham's collection. Choose from the following:

Getting Started In Ham Radio. Covers the early stages of ham radio including station layouts, safety, choosing and setting up equipment and repeaters. By **CQ Videos**, only **\$19.95 (\$3.00 S&H)**.

Getting Started On Amateur Satellites. A "how-to" guide for the newcomer wanting to work the world through Amateur satellites. Discusses equipment, DXing and more. By **CQ Videos**, **\$19.95 (\$3.00 S&H)**.

Getting Started In Packet Radio. A "how-to" guide to setting up a computer-to-computer station, getting on the air, QSOs, and operating packet effectively. By **CQ Videos**, only **\$19.95 (\$3.00 S&H)**.

Getting Started In DXing. Successful DXers offer their tips on getting started, proper operating skills, snaring the rare ones, basic equipment and more. By **CQ Videos**, only **\$19.95 (\$3.00 S&H)**.

Reading, 'Riting and Radio! Great for teachers and instructors, educator Carole Perry, WB2MGP, with her students and ham radio classes for children shows how beneficial and exciting ham radio is in school for teaching geography, world affairs, current events, math and more. Only **\$19.95 (\$3.00 S&H)**.

CQ Field Day! Designed to help hams who want to set up their equipment in the great outdoors, this tape takes you to the award-winning 22A Field Day station. It shows you everything from setting up to packing up an outdoor radio station. Only **\$19.95 (\$3.00 S&H)**.

Ham Class. Well-known instructor, Gordon West, WB6NOA, helps prepare students and instructors to set up a ham class. The tape contains live classroom demonstrations and tips on setting up classes or training seminars. Only **\$19.95 (\$3.00 S&H)**.



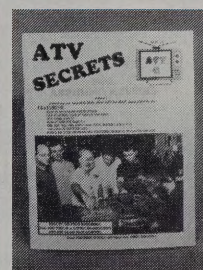
NEW!

Packet Radio For Beginners

NARA has done it again with **How To Get Started In Packet Radio** written by well-known author Dave Ingram, K4TJW.

This informative new book

explains the practical side of packet radio in a simple-to-understand manner. It begins with a non-technical description of packet radio, followed by chapters including *Getting Started*, *Setting Up Your Station*, *Operating Packet to Networking and HF Operation*. There is even a *Packet Radio Equipment Survey* and an appendix that includes circuits for interfacing equipment! Get **How To Get Started In Packet Radio** today for only **\$9.95 (\$2.00 S&H) #B670**.



ATV Secrets For Aspiring ATVers

ATV Secrets For Aspiring ATVers, written by Henry Ruh, KB9FO, contains everything you wanted to know about **Amateur Television (ATV)**. All ham licensees

can participate in ATV—even those with the new no-code license! Amateur TV is fun and exciting. Take your own home video productions, make new friends and get more enjoyment from your video equipment. Hams should be seen as well as heard!

ATV Secrets is available through all major Amateur Radio equipment stores, or direct from NARA for only **\$7.98 WAS \$9.98 (\$2.00 S&H) #B630**.

The FCC Question Pools—

Each booklet contains all the questions and answers for each license class. Does not contain explanations. Order your booklet by license class.

- Novice and Technician classes together (all the questions for the new code-free Technician class license) **\$4.95 (\$1.00 S&H) #B650**.
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- Advanced Class **\$3.00 (\$1.00 S&H) #B652**
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NARA Is The Only National Organization

exclusively devoted to

Novice and Technician Class Amateurs!

Who Is The National Amateur Radio Association?

NARA is striving to publicize Amateur Radio to the general public, attract young people to the Amateur Radio Service, increase the stature and benefits of the Novice and Technician class license and save the various Amateur bands from confiscation by commercial interests.

Recently, Amateur Radio lost part of the 220-MHz band and, in some areas of the country, is in the process of losing access to another band (900 MHz).

We must get more people involved in the Amateur Radio Service so we can increase activity and retain our remaining Amateur bands.

NARA brings you an exciting future as an Amateur Radio operator!

Who Should Belong to the National Amateur Radio Association?

- Anyone interested in obtaining an Amateur Radio license
- New Amateur Radio operators of all classes
- Public and private school teachers who want to introduce their students to Amateur Radio
- Beginning Novice and Technician class Amateurs
- Elmers who want to assist beginners
- All Amateurs concerned about the future of the Amateur Radio Service

What Will You Gain when You Join NARA?

- 1** Knowledge to help you get the most from the Amateur Radio Service
- 2** You will insure a solid future for the Amateur Radio Service
- 3** You will be helping others become involved in Amateur Radio
- 4** Plus you receive our member journal, *The Amateur Radio Communicator*!

Join the National Amateur Radio Association and receive *The Amateur Radio Communicator*!

HOW DID I GET THIS MAGAZINE?

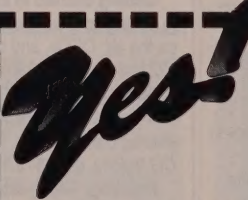
ONE OF THE WAYS WE CAN TELL THE WORLD ABOUT the goals and ambitions of the National Amateur Radio Association is to supply complimentary copies. We send about 10,000 pieces to newly licensed hams. This magazine is also mailed to a select list of people who might be interested in becoming Amateurs. We also send approximately 10,000 copies to NARA members and prominent people in Amateur Radio.

If your mailing label does not include a NARA membership number, this may be your last or only copy of *The Amateur Radio Communicator*. We would like to continue providing you with this

Here's What You'll Find in the *Communicator*!

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- Help passing your Novice or Tech exam
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When you join NARA, your membership dollars will be used to **further these goals**. Let's face it—with a membership cost of only \$10.00 per year, **you won't find a better value in Amateur Radio!!!** Join today! It's easy. Just complete the subscription form below and mail your check or money order. For the fastest service, call 1-800-GOT-2-HAM(1-800-468-2426) with your Visa or MasterCard number.



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informative publication, but we can only do so if you are a member of NARA. For those interested in becoming a ham, or who are newly licensed, a membership in NARA represents an outstanding bargain. A membership, which includes a subscription to *The Amateur Radio Communicator*, is only \$10.00 per year.

Check the mailing label for your membership number. If you don't see one, look at the NARA advertisement and read the benefits of becoming a member of this fast-growing organization. We need your support and so does ham radio. Help us get it "going and growing!"

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